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INFLAMMATION OF THE GALL-BLADDER

ITS CAUSES, SYMPTOMS AND RESULTS *

JAMES TYSON, M.D.

PHILADELPHIA

Inflammation of the gall-bladder, like many other inflammatory affections, varies so much in grade that certain mild forms do not cause appreciable symptoms, while it may be so severe as to justify the adjective "fulminating." In either event the mischief wrought corresponds with the degree of severity.

Its causes are those usual to inflammation, most frequently some pathogenic organism favored or not by local irritation of a mechanical kind. Perhaps the most common cause is the typhoid bacillus, which creeps up the common duct from the bowel. The favoring cause may be gall-stones preexisting in the bladder, or they alone may irritate enough to light up an inflammation. Again, there may be inflammation in adjacent parts which extends *per contiguum* to the gall-bladder. The variety associated with typhoid fever is most familiar to us and commonly ushers itself with a chill and fever, with pain and tenderness in the neighborhood of the gall-bladder. Successive attacks may occur, each one milder than the preceding. The milder grades commonly terminate in resolution or at least in partial resolution, some cases persisting a longer time. Such a remnant may result in alteration of secretion which leads to precipitation of the solids of the bile and the formation of calculi.

The severest or fulminating form often terminates in abscess, which, if unrecognized, may rupture into the peritoneal cavity, producing shock and death, although at times life is saved by operation promptly performed, even after rupture. Next to the typhoid bacillus the colon bacillus is a frequent cause of cholecystitis.

A result appreciated comparatively recently is adhesion of the gall-bladder to adjacent viscera, now recognized as a frequent cause of pain in the right upper abdominal quadrant, formerly unexplained.

The most important consequence of inflammation of the gall-bladder, because of its frequency and further consequences, is cholelithiasis. Cholelithiasis may arise independently of inflammation of the gall-bladder, or at least with symptoms so mild as to be unrecognizable. In either event the immediate cause is such perversion of secretion as results in the precipitation of cholesterin and lime-salts and the formation from these of calculi. Naunyn called our attention to the fact that cholesterin and lime-salts are a secretion of the mucous membrane of the gall-bladder and ducts as well as of the liver, and that this source is especially active when the mucous membrane is in a state of active inflammation.

We should not overlook the fact also that there are other predisposing causes which need only be mentioned in passing, such as sedentary habits and lack of exercise, tight lacing, child-bearing and abdominal tumors. All of these contribute to explain the greater frequency of cholelithiasis in women than in men, four times as often. The excessive use of fatty, starchy and saccharine food is also said to favor gall-stone formation.

It is especially cholelithiasis due to active cholecystitis to which I wish to call attention because of its great practical importance not only on account of the suffering it entails, but also because of more serious consequences which have not been sufficiently emphasized, namely, its tendency to the production of cancer and other morbid anatomic states of the biliary passages.

The causal relation of stones in the gall-bladder and biliary passages to carcinoma of these localities has for some time been regarded as settled, and no one now denies that gall-stones may be an exciting cause of cancer in their neighborhood, but I do not think that the profession at large has been strongly enough impressed with the importance of early operation for removal of the offending calculi. The practice so long universal of waiting for further developments, or until direct danger to life is evident, is still too general. Realizing that many lives are thus sacrificed that might be saved and that the voice of the physician is sometimes heeded by the conservative general practitioner more than that of the surgeon, I thought that I might help those who are hesitating, by reporting my own experience, with reasons for my conversion to the belief that in every case of well-determined cholelithiasis, operation should be promptly performed with a view to averting cancer as well as relieving suffering and averting less serious complications.

In illustration, I append the history of three cases:

CASE 1.—Cholelithiasis; carcinoma of the gall-bladder and liver.—Mrs. D. was seen in consultation with Dr. H. G. Norton of Trenton in December, 1906. Her mother died of cancer. The daughter reports an attack of dysentery with nausea, loss of appetite and vertigo while at the seaside the previous summer. Otherwise her health had been fairly good. Dr. Norton saw her for the first time, November 11, for an obstinate cough contracted three weeks earlier. At that time she appeared to have no other ailment, but a couple of weeks later he discovered a prominence in the right hypochondrium. About this time, too, the cough grew worse, but later yielded somewhat to treatment. The patient had no pain in the region of the liver until about the time of my visit to her in December. There were no signs of pleuritic disease or deep-seated involvement of the lungs. Her temperature during this preliminary period was from 99.5 to 101 F. Soon

* Read before the Philadelphia County Medical Society, March 11, 1914.

is frequently so excessive that it produces congestive dysmenorrhea. The upright position, lax abdominal muscles, costal instead of diaphragmatic breathing and constriction of the body by clothing which interferes with the use of the abdominal muscles and diaphragm—all combine to develop and promote this excessive pelvic congestion. As a result, there is pain at the menstrual period, prolonged hemorrhage and undue loss of blood.

In a large number of cases I have corrected these conditions by the following physiologic method: All tight clothing having been removed, the woman is placed on her back, on a level surface, in the horizontal position. The knees are flexed and the arms are placed at the sides to secure relaxation of the abdominal muscles. One hand is allowed to rest on the abdominal wall without exerting any pressure, to serve as an indicator of the amount of movement. The woman is then directed to see how high she can raise the hand by lifting the abdominal wall; then to see how far the hand will be lowered by the voluntary contraction of the abdominal muscles, the importance of this contraction being especially emphasized. This exercise is repeated ten times, night and morning, in a well-ventilated room, preferably while she is still in bed in her night-clothing. She is cautioned to avoid jerky movements and to strive for a smooth, rhythmical raising and lowering of the abdominal wall.

In many cases and particularly in those who most need the exercise, the voluntary contraction of the muscles will at first be very slight. Occasionally, the woman will complain of dizziness, and the exercise should be discontinued for that time; but she will be able at subsequent trials to increase the number of repetitions until she reaches the specified number. In a few cases some discomfort or slight pain has been experienced with the contraction of the abdominal muscles; nevertheless, if the exercise is gently continued, these symptoms are relieved and usually disappear entirely.

The result of the treatment has been that the pain has been lessened in many cases, and wholly removed in a large number. In women who are habitually free from pain at the menstrual period, but who, on account of some unfavorable condition, have suffered an attack, the pain has been stopped at its onset by these exercises. The exercises have been taught by the women under my care to others with the same satisfactory results as, for instance, in the following cases:

Patient A was a sister of woman under my observation. Symptoms were too abundant flow of too long duration (nine to fifteen days), headache, backache, cramps during the entire period; obliged to go to bed to control the flow. This woman has practiced these exercises daily for six months with the result that the headaches have almost disappeared, the backache and cramps are much less severe and she is able to be about on her feet instead of going to bed.

Patient B was the mother of woman under my observation. Menstruation was normal and without pain, but the patient has always suffered from severe constipation, which medical and osteopathic treatment has failed to relieve. Since she has been taught these exercises by her daughter the constipation has disappeared.

Constipation, which is so frequently a factor in producing mechanical dysmenorrhea, may be corrected in a certain number of cases by the massage of the intestines, which is brought about by the contraction of the abdominal muscles and the descent of the diaphragm in these exercises. The correction of constipation in cases in which it exists is also a factor in the improvement as well as the correction of the excessive uterine congestion. A general improved condition of the organism is, of course, induced by proper elimination.

The effect of such exercises in limiting the duration and amount of the flow is shown in such an instance as Case 180 T, in which the patient menstruated regularly every twenty-eight days, the entire period lasting eight days and the main flow four days. Usually much abdominal pain was felt on the first day, though sometimes—as three months ago—she had no pain. Though she did not go to bed she had to rest the whole first day. She is of a temperament that worries about everything. She discovered for herself that walking at the menstrual period relieved the pain; after taking regular gymnastics and these exercises for several months she had gained in weight, there was no pain at the menstrual period and its duration was reduced to five days. She reported that she went to two dancing parties on successive nights during a menstrual period without suffering any undesirable results.

Patient V 53 had no pain, but the period lasted eight to nine days, the main flow only three days. After she has practiced these exercises daily the duration is reduced to five and the main flow to two days, and she is in much better general condition than formerly. Many women who have taken these exercises regularly, report periods shortened and some that the amount of the flow is less. In some cases it has been necessary to continue the exercises for some time before any marked change in length and amount of flow has been accomplished.

Two patients have corrected the symptoms of nausea and vomiting during menstruation by these special exercises and the morning sickness, which often accompanies pregnancy, has been completely corrected by Patient 51 M. She was pregnant about three and a half months and was in the habit of waking about 4 o'clock in the morning with severe nausea and retching. By practicing these exercises she obtained immediate relief and repeating them several times a day she has stopped not only these attacks, but also relieved the sense of weight and of pressure in the legs. These exercises have been continued through the later months of pregnancy for this latter symptom, and she has found them helpful in producing sleep.

In simple and uncomplicated cases it should be possible to control hemorrhage at the menopause as in Patient C (mother of woman under my observation), whose symptoms were severe headache, excessive flow and constipation. She takes the exercises twice daily during the month with the result that her headaches have almost disappeared, the flow is already reduced to reasonable amount and the constipation is definitely less.

It is well known that many women have pimples at or near the time of menstruation. Careful observation has shown that they sometimes come before, sometimes during and sometimes after the period. This variation corresponds to the drop in the sexual blood-pressure, a rhythm which bears the same variable relation to the menstrual flow. May not the appearance of these pimples be due to the drafting off of too much blood from the general circulation to the pelvis, thus leaving the digestion a little less perfect? The skin may suffer as well from depleted circulation—a woman is often noticeably paler at the menstrual period. The unfavorable condition may be further increased by the omission

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to bathe, a habit which is traditional among women. It is not strange that the organism should work less perfectly when all its activities are so sharply altered as has become habitual among a large number of women at the menstrual period.

The desirability of more activity during menstruation is illustrated by Case D (not under my observation). A robust young woman suffered with too abundant flow which came every three weeks and then every two weeks. She was in the habit of always resting at the menstrual period. All medical care failed to relieve this too abundant and too frequent hemorrhage. She took an office position which required her to be indoors all the week except Saturday afternoon. In order to get some outdoor life she made it a practice to take a long walk of from 6 to 10 miles on her half holiday. She did this every week even if menstruation came at the time. Her periods promptly improved. She is now perfectly well with a period coming every twenty-eight days and with a reasonable flow.

While ordinary activity during the menstrual period is desirable, a word of warning is needed in this relation. Although some women may be able to carry on all their usual physical work, it would be a dangerous experiment to permit pupils in the secondary schools especially or even women in college to continue all their regular gymnastics and athletics. Many of the more mature women may be able to go on with safety, but it is impossible to draw the line between those who are and those who are not able to do violent exercise at this time. The individual judgment must be sufficiently developed after proper training in physiology and hygiene to assume the responsibility for the degree of activity desirable during the menstrual period.

Psychic Influences: The first step in the physical regeneration of women is to alter their habits of mind in regard to bodily functions. They now accept periodic disability as inevitable. The terms "sick time," "unwell," etc., for the function of menstruation and the mental acceptance of disability is so firmly fixed in traditional thinking that it is difficult to get a woman even to try to be perfectly well, however simple the method of relief offered to her. In answer to any suggestion I am met with such statements as: "I have so much less trouble than my friends that it does not seem worth bothering about"; or, "Everyone has more or less trouble," or "I can't remember to do the exercises"; the implication always being that such trouble is inevitable to woman. One young woman under observation gave this account of her experience:

> I had never had a period without terrible pain since I was 13 years old. I always went to bed, at least for the first day. My mother has taken me to every kind of a doctor, even osteopath and chiropath, and none of them did me any good. I didn't believe in your exercises, but after talking with you I did them for two weeks twice a day, and two or three days before my period, for three times a day. When I felt that it was coming on I did two hours of my class-work and telephoned my mother to have hot-water bottles and my bed ready when I should come home. I was so sure that I would have the customary pain that I lay down and waited for it to begin. But it did not begin. Then I got up and went out to gather some greens for decorations for a dance which was to be given that night. I fell over a fence and then I was sure I would have a terrible time. But as the pain still did not come on I stayed around till dinner-time and afterward dressed and went to the party. On the second day I was on my feet all day and did much heavy lifting so that I was very tired and felt a sense of weight (in the pelvis) but I had no pain, cramps or any bad effects.

The lassitude, headache and nervous irritability which it has been customary to associate with the menstrual function, may readily be explained by (1) the lowered general blood-pressure and the excessive congestion of the uterus which causes the lack of a proper blood-supply in other organs, and (2) an inactivity which brings about both a lessened oxygen intake and a decreased carbon dioxid elimination, thus favoring the development of these undesirable symptoms. To these factors must be added the normal stimulation of the sex centers at this time, which may express itself in nervous irritability and depression. The traditional treatment of rest in bed, keeping the patient very warm, directing the attention solely to the sex zone of the body, and the accepted theory that it is an inevitable "illness" while at the same time the mind is without wholesome occupation, produces a morbid attitude and favors the development and exaggeration of whatever symptoms there may be.

From these cases and their response to these regular exercises it becomes evident that the definition of menstruation should be restated more accurately: menstruation is a hemorrhage from the uterus of a woman which occurs at regular intervals. It is Nature's effort to relieve the undue congestion of the uterus which has been induced (1) by the upright position and (2) by interference with the normal physiologic return of the blood to the heart which should be accomplished by the action of the diaphragm and the abdominal muscles. The undue congestion is most frequently the cause of pain at the beginning of the menstrual period, and this pain disappears as soon as the flow is well established.

Additional evidence that the menstrual pain is caused by this excessive congestion is furnished by Dr. Esther Rosencrantz of San Francisco. In a recent conversation she stated that she frequently prescribed to her patients two hot tub baths a day to relieve the pain at the onset of menstruation. The hot bathing would, of course, divert the blood from the overcongested uterus to the skin.

The periodic raising of the local blood-pressure and the lowering of the general blood-pressure has been grossly exaggerated in the woman by her physical inactivity and by her constricting dress and unhealthful habits. The hemorrhage is brought about probably by Nature's usual method—diapedesis[4]—and there is no shedding of the epithelium in preparation for the reception of the fertilized ovum as was formerly supposed. Does not Loeb's work,[6] showing the sensitizing of the uterine mucosa by the secretion of the corpus luteum so that it reacts to the normal stimulus of the fertilized ovum, do away with any theoretical necessity for a new surface?

I believe that menstruation represents, not a supplemental wave of nutrition (Jacobi[7]), but rather a waste of potential energy in the form of blood which might be used in productive work when not required for the development of the embryo. No physiologic purpose is served by the excessive congestion of the uterus and adnexa so frequently found in women. No harm can possibly come from bringing about a better circulation of the blood through the generative organs by the physiologic method here suggested. The healthy functioning

6. Loeb, Leo: Experimental Production of the Maternal Placenta and Function of the Corpus Luteum, THE JOURNAL A. M. A., Oct. 30, 1909, p. 1471. See also editorial, Function of Corpus Luteum, THE JOURNAL A. M. A., Feb. 25, 1911, p. 59.

7. Jacobi, Mary Putnam: The Question of Rest for Women, p. 168.

after my visit her appetite failed and drowsiness supervened. She was disposed to constipation but there was no jaundice, nor were there clay-colored stools. The urine was reported normal. Subsequently to my visit the patient developed vertigo and some delirium.

On account of the hepatic enlargement, carcinoma of the liver was suspected, although there had been no jaundice or other symptom of disease of the liver unless the vertigo and loss of appetite be so regarded. Because of the surgical aspect of the case, Dr. John G. Clark was asked to see the patient. He advised operation and made a section displaying the gall-bladder. It contained gall-stones and was the seat of carcinoma which had invaded the liver. The patient died Jan. 14, 1907.

With our present knowledge of these affections it is reasonable to believe that an earlier operation would have been followed by more favorable results, but it will be observed from the history that there was no definite diagnosis of cancer, or, indeed, of cholelithiasis until it was made at the operation, both conditions being present at that time. It is, moreover, not impossible that the carcinoma was the primary disease.

CASE 2.—Cholelithiasis; cancer of the gall-bladder; general peritoneal carcinoma.—Mrs. —, was admitted to the University Hospital, Dec. 23, 1906. I had seen her in consultation with Dr. Laws of Paulsboro, N. J., in the previous summer. She then suffered with abdominal discomfort and pain, but she was stout and difficult to examine, and I could find no well-defined evidence of cholelithiasis or other abdominal disease. She was then 52 years of age. Her pregnancies, of which she had had six, were always accompanied by severe pain in the epigastrium, but her labors were normal. With the discovery of stones in the gall-bladder it became reasonable to suppose that the earlier pain during pregnancies may have been due to pressure on the stone-packed gall-bladder by the gravid uterus. With the lapse of time her symptoms became more definite. The pain increased so much in severity as to require hypodermic injections of morphin to relieve it. She had a severe attack of this kind in September. She grew gradually worse and entered the University Hospital, December 23, where Dr. Clark did an exploratory operation December 26. The gall-bladder was found filled with stones and was the seat of carcinoma and there was general peritoneal carcinosis. She died Feb. 11, 1907, after much suffering. Jaundice appeared for the first time, Jan. 21, 1907.

CASE 3.—Cholelithiasis; carcinoma of the gall-bladder; carcinomatous invasion of lymphatic glands and liver.[1]—Mrs. M., aged 60, was admitted to the University Hospital on Dr. Clark's service, Jan. 22, 1900. Except for rheumatism, of which she had had several severe attacks, and indigestion more or less for years, she had fair health until her present illness. She has had four children, of whom the youngest is 24 and the oldest 37 years. Mrs. M. has not felt well for several months, suffering with pain in back, but about five weeks before admission she began to have pain also in the right upper quadrant of the abdomen. This persisted, but it was never very severe and often the pain in the back was worse than that in the right side. About three weeks before admission she noticed that her skin was getting yellow, and also that the urine was deep brown in color. A week later she observed a lump on the right side just below the costal margin. For two or three days in the previous week she had had considerable pain on urination. Bowels have been constipated for some years, requiring cathartics. For the past four or five weeks the stools have been very light in color, never before. She has had a great deal of occipital headache during the past winter.

The patient is extremely jaundiced. In the right upper quadrant of the abdomen, extending about four finger-breadths below the costal margin, is a smooth, somewhat tender, tense mass about the size of a large lemon. The urine is very dark red, specific gravity 1.025, acid, contains a trace of albumin, no sugar, a few narrow hyaline and bile-stained granular casts, a few cylindroids, and no red blood-cells, leukocytes or bacteria.

June 24, Dr. Clark made a vertical incision over the gall-bladder, which was found to be enlarged and very tense. When it was opened a quantity of greenish pus squirted out under pressure. The lower portion of the gall-bladder was packed full of small stones, probably several hundred in number. The wall of the gall-bladder was in places about one-fourth inch thick and quite hard. The mucosa was intensely inflamed.

After removal of the stones, many small nodules could be felt in the wall of the gall-bladder surrounding the common duct, and one quite large nodule in the liver. One of these nodules was removed for examination, and macroscopically resembled carcinoma. The posterior half of the gall-bladder was excised; the anterior half, adherent to the liver, was left *in situ*. A large gauze packing was placed down to the base of the gall-bladder and the wound closed with silkworm gut. The packing was all removed by the fifth day. The patient complained bitterly of pain in the back for many days after the operation, and continued to do so longer in less degree. The jaundice cleared up partly, but continued some time longer. The stools became normal in color. The patient gained strength rapidly.

The pathologic diagnosis was carcinoma of the gall-bladder and of the adjacent lymphatic glands.

Delay in operation in cholelithiasis is sometimes followed by other terminations which are scarcely less serious than carcinoma. Among these are suppurative cholangeitis involving more or less the ducts of the liver, whence it may extend into the liver substance or gall-bladder, causing abscess of the liver and empyema of the gall-bladder, and terminating fatally unless relieved by operation.

Another is the establishment of biliary fistulas in different situations in the abdominal cavity, ulcerative perforations of the biliary passages which in 70 cases out of 499 cases, reports of which were collected by Courvoisier, occurred directly into the peritoneum; in 49 there was encapsulated abscess and in 3 retroperitoneal perforation.

Between the biliary passages themselves were 8 cases; this perforation was found directly from the gall-bladder into the substance of the liver (4 cases); into the hepatic duct (2 cases), into a diverticulum of the common duct (1 case) or between the intestinal and hepatic parts of the common duct (1 case). Perforation between the biliary passages and portal vein was found in 5 cases, including the celebrated case of Ignatius Loyola. Openings between the biliary passages and gastro-intestinal canal are not uncommon (137 cases), most frequently between the bile-passages and duodenum, of which there were 83 cases, of which 73 were between the gall-bladder and duodenum, while 10 were between the common duct and duodenum. From the biliary passages into the stomach there were 13 perforations; into the jejunum 1, ileum 1 and colon 39. As might be expected, perforation takes place most frequently from the intestinal part of the duct, the stone first lodging in the diverticulum of Vater. Perforation into the urinary passages was found in 7 cases and into the pleura and lungs in 24 cases. To the last-mentioned, J. E. Graham added ten cases of broncho-biliary fistula. Finally, there may be fistulous communication between the biliary passages and the external integument, Courvoisier having collected 196 cases, in 49 of which the communication was in the right hypochondrium, 36 at the border of the ribs, 49 at the navel or in its vicinity, 17 in the right mesogastrium, 10 in the right iliac region and 6 in the epigastrium. Very

1. Published by permission of Dr. Clark.

interesting in this connection is the fact that out of 169 cases in which the sex was noted, 126 were in women and 43 in men.

Atrophy of the gall-bladder is not infrequent, and may succeed hydrops vesicae felleae. Many gall-bladders do not hold more than a dram or two of bile, and sometimes there is a mere remnant left in the shape of a fibroid mass; at other times the shrunken bladder closely embraces a single gall-stone of large size. Gall-stones are occasionally found in diverticula of the gall-bladder. Suppurative phlebitis and abscess of the liver may also be due to gall-stones, causing a puriform thrombus in an adjacent branch of the portal vein.

In other instances the gall-stone is so large as to obstruct the bowel when discharged into it, although it may have passed through the natural channel, as evidenced by dilatation of the common duct. For the most part, however, such discharge is by ulceration into the intestinal tract.

It cannot be denied that associated cancers of the gall-bladder may have preceded the cholelithiasis, but there is at least as much reason to believe that they succeeded it. It is just as reasonable to suppose that had operation been performed earlier it would have been successful, and the cancer with its fatal terminations, prevented. The present state of operation on the gall-bladder is such that it is practically as free from danger to life as appendectomy if done early. The medical treatment is at best palliative, and it is not worth while to lose time with it. Nay, more: I believe that in doubtful cases exploratory operation is at times justified, and the more justified because if cholelithiasis is not found some other remedial state may be encountered which would otherwise be undiscovered.

I have said little about symptoms or diagnosis of cholelithiasis, because my object has been to call attention to the importance of early surgical treatment with a view to prevention of carcinoma and other dangerous complications, almost all of which can be averted by such treatment.

1506 Spruce Street.

A PHYSIOLOGIC TREATMENT OF CONGESTIVE DYSMENORRHEA AND KINDRED DISORDERS ASSOCIATED WITH THE MENSTRUAL FUNCTION

THIRD NOTE

CLELIA DUEL MOSHER, A.M., M.D.
Medical Adviser to Women, Leland Stanford Junior University, Department of Medicine
STANFORD UNIVERSITY, CAL.

In 1911 I called attention[1] to certain factors which produce physical degeneration and increase the number of women suffering from dysmenorrhea, and suggested a method of treatment. The conclusions stated here and those of former papers as well are based on personal observation of several hundred average women during several thousand menstrual periods; they have been supplemented by experimental work in the physiologic laboratories of Johns Hopkins and Stanford University and in Dr. Kelly's laboratory at Baltimore. These observations and experiments have been almost continuous through a period of twenty-two years.

In order to approach the subject of menstruation with a judicial mind it is necessary to discard preconceived ideas, sex traditions and individual experience — in short, to begin afresh, observing this function precisely in the same attitude of mind that one would observe other periodic functions, such as digestion, defecation, urination and sleep. With this dispassionate view we may be able to accept the definition here given.

Menstruation is, in fact, a periodic flow from the uterus of woman which occurs at fairly definite intervals in the same person. This interval is counted from the first day of the onset of the flow to the first day of the next onset. The duration of the flow, which varies in different persons, should be not more than two or three days. When normal, this function is not attended with pain or disability of any kind.

The functional dysmenorrhea so commonly observed is, in the larger number of cases, congestive in type, and is produced by: (1) the upright position (Moscati), (2) alteration of the normal type of respiration by disuse of the diaphragm and of the abdominal muscles; (3) the lack of general muscular development; (4) inactivity during the menstrual period; (5) psychic influences. In order to follow the relation between these causes of congestive dysmenorrhea and the physiologic treatment about to be suggested, it is necessary to have clearly in mind certain anatomic and physiologic facts concerning circulation.

The circulatory apparatus in human beings is not materially different from that in the higher mammals which go on all fours and thus carry the body in the horizontal instead of the upright position. The vena cava is without valves; and therefore, in the upright posture, a great column of blood must be sent back to the heart against the force of gravity. The chief factor in the return of the blood to the heart is the negative pressure in the thorax. "At each inspiration blood is 'sucked' from the extrathoracic into the intrathoracic veins."[2] The thoracic portion of the vena cava inferior which is under less pressure than the abdominal portion has this difference increased by the descent of the diaphragm and the contraction of the abdominal muscles.

Whatever part of the body is functioning at any particular time has a larger supply of blood. Thus the uterus, during the menstrual period, has its blood-supply augmented and at the same time the general blood-pressure is lowered[3] and the local blood-pressure raised. By the menstrual hemorrhage the excessive local blood-pressure is relieved. This blood, lost in the menstrual flow, is the same kind of blood as that used for mental or physical activity and represents, therefore, potential energy. In the intermenstrual period more energy of the person must be used to replace this loss. Normally, according to Cullen,[4] Williams,[5] Moericke and others, the epithelial lining of the uterus is not shed.

This periodic physiologic congestion of the uterus in woman, which occurs about the time of menstruation,[3]

1. Mosher, Clelia Duel: Functional Periodicity in Women and Some of the Modifying Factors (Second Note), California State Jour. Med., January and February, 1911; reprinted in full in Woman's Medical Journal, Cincinnati, April, 1911; abstr., THE JOURNAL A. M. A., April 29, 1911, p. 1295; Sargent Normal School Association Proceedings, 1911, p. 14; American Physical Education Review, November, 1911, p. 493.

2. Howell, W. H.: Text-Book of Physiology, p. 588.

3. Mosher, C. D.: Normal Menstruation and Some of the Factors Modifying It (preliminary note), Bull. Johns Hopkins Hosp., 1901, xii, 178.

4. Cullen, T. S.: Changes of the Endometrium at the Menstrual Period in "Cancer of the Uterus," pp. 25-26.

5. Williams, J. W.: Observations on the Mucosa during Menstruation (also quotes views of Moericke and others) Obstetrics, p. 75.

of any organ is dependent on perfect circulation which brings oxygen and nutritive material to its cells and carries away its waste products, not on being overfilled by a sluggish blood-flow. In this overcongestion, often unduly prolonged, have we not a condition favoring the development of pathologic conditions?

It is generally believed that primitive and savage women have a very scanty menstrual flow. That a flow of short duration and limited quantity is not abnormal even among civilized women is shown in the following case.

The menstrual history of Patient 47 M began at 16, and was well established at 18; regular every twenty-eight days; flows scanty, duration three days, first day being slight colored flow, second day a little flow of decided color, third day lessened color; no pain. There was complete amenorrhea during the patient's first year in college; prompt return of normal periods during vacation; on reentering college the second year, amenorrhea again. At the end of this year she was advised by the college physician not to continue her course because of the amenorrhea. Soon after leaving college she was married and has borne eight vigorous, perfect children, and has normal sexual instinct.

Women have been taught to fear every variation in the menstrual function, but they are often quite ignorant of the origin of this unnecessary terror of even slight variations. This has come possibly from the fact that amenorrhea may be a symptom of pregnancy. Is it not probable that the amenorrhea induced by change of climate is an indication of increased rather than diminished vigor, when it is not associated with undesirable symptoms? Excessive work in college, usually social as well as mental, occasionally gives rise to a temporary amenorrhea—a mere colorless show appearing at the regular period. I have pointed out to such young women the relation between the extra strain and the absence of the usual hemorrhage—they had nothing to waste. If they were not anemic or otherwise in poor condition, the assurance that the flow would return when they ceased to work so hard would set their minds at rest. If they had been encouraged to worry about it, psychic influences might have induced more serious symptoms. Again, the menstrual period occasionally is skipped once or twice; it returns, no harm has been done, apparently — any more than in Patient 47 M already quoted, in which the college career was cut short unnecessarily, through fear, although the young woman was splendidly well in every other particular.

There is, however, some danger of confusing cases of amenorrhea, lessened flow and colorless flow which are due to lowered vitality, to anemia or to other serious disturbances, with the normal shortening of flow and lessening of amount in vigorous women produced by the more perfect circulation induced by the exercises already described, and it is obvious that careful discrimination must be made.

For twenty years I have been asking myself the question: "Why are some weak women free from menstrual disability while some strong ones suffer much pain?" The answer has been given to me every time I suggested these abdominal exercises to a woman who had never had any pain. She said: "I always breathe this way." In other words, normal women who have the diaphragmatic type of respiration have no menstrual pain. This does not prevent them, however, from having too long periods nor from undue loss of blood. In order to change these conditions the abdominal muscles must be exercised definitely and regularly.

Constrictive dress and inactivity interfere more with the abdominal muscles than with the diaphragm. The degree to which they induce menstrual pain may be suggested by a comparison of observations made in 1893-6 with others made in 1910-14. In 1893-6 a larger proportion of the women had pain and discomfort of severe type and of relatively long duration. In 1910-14 the larger number of cases have no disability and such pain as the remainder have is rarely severe and of short duration. In 1893-6 the average width of skirts worn by 98 young women was 13.5 feet—the widest 15 and the narrowest 9 feet. The weight of the outside skirt alone was often nearly as much as the weight of the entire clothing worn by a modern girl. At that period, too, every woman must have a wasp-like waist and several under petticoats were also carried from the waist. It is certainly not difficult to understand why so many women had menstrual pain at that period.

The modern girl with her large normal waist may in some cases have her narrow skirt criticized on the ground of modesty, but from the point of view of health we should rejoice in her freedom. The only other factor which is tolerably constant in the two groups compared above is that of exercise. In some measure the greater activity of modern girls, made possible by lighter and looser clothing, has undoubtedly assisted, when the skirt is not narrow enough to be a limitation to lessen the menstrual hemorrhage, its duration and the associated pain.

Under normal conditions there should be no more women suffering with disorders of the generative organs than with disturbances of the digestion or respiration or heart. But it is still very difficult for us to lend an open mind to any theory which opposes the accepted one of inevitable menstrual disability among women. An English writer,[8] who quotes my experiments on women, ignores the corresponding set of experiments on men, thus deducing quite false conclusions. He sets aside the statements that the blood-pressure rhythm cannot be a menstrual rhythm since it is found in men as well as women; and that the coincident functional disturbances in other organs are probably due to the lowered general blood-pressure.[3] Mr. Havelock Ellis disposes of the subject as follows:

> Suffering occurring at the menstrual period, whether directly or indirectly due to the menstrual process, is quite properly described as menstrual suffering.

In regard to menstruation we have too long confused cause and effect: the menstrual hemorrhage is not the cause of the blood-pressure rhythm, but an exaggerated result of interference with normal circulation.

The economic loss to the individual woman who has to earn her living and is yet periodically incapacitated more or less is very great; and even to the married woman the loss in time and working capacity is considerable. But these losses are relatively small as compared with the inability of the periodically depleted woman, to be a vigorous mother to the race.

The first of these remedies is the removal of the factors which are producing the disability—constrictive clothing and the inactivity of the muscles of the abdomen and the diaphragm. But more important even than this is an alteration of the morbid attitude of women themselves toward this function, and almost

8. Ellis, Havelock: Man and Woman, 1913, pp. 287, 291, 298.

equally essential is a fundamental change in the habit of mind on our part as physicians; for do we not tend to translate too much the whole of a woman's life into terms of menstruation? If every young girl was taught that menstruation is not normally a "bad time" and that pain or incapacity at that period is as discreditable and unnecessary as bad breath due to decaying teeth, we might almost look for a revolution in the physical life of women.

At present all the evidence points to the menstrual hemorrhage as a secondary matter more or less fixed by the upright position. It is unnecessary and undesirable that it should be of more than brief duration or of more than slight amount. Pain and discomfort, where no organic lesion exists, are readily controllable by the physiologic regulation of the circulation from the abdomen and pelvis back to the heart by the restoration of the tone and action of the abdominal muscles and diaphragm. The coincident functional disturbances in other organs are a result, directly or indirectly, of the undue congestion in the pelvis which has drafted off too much blood from the general circulation leaving other parts, as the digestive area or skin, too depleted to function properly. The congestive headaches, whether they occur at the menstrual or the intermenstrual period, are relieved by the equalizing of the circulation by these exercises.

A CASE OF SO-CALLED "RENAL DIABETES," POSSIBLY TRAUMATIC IN ORIGIN*

SOLOMON STROUSE, M.D.
AND
ALBERT H. BEIFELD, M.D.
CHICAGO

The relations between the kidney and sugar excretion form interesting chapters in the study of diabetes and of less well-known glycosurias. The general conception that the kidney is practically passive in diabetes has been disputed. In 1897 Lépine[1] reported the case of a woman dying in coma, whose blood contained 1.6 per cent. sugar and whose kidneys were enormous and showed a high grade of interstitial inflammation. Richter,[2] in 1900, in a critical review of the relation between kidney and glycosuria, concluded that renal diseases may have a favorable effect on glycosuria, and that in kidney diseases the permeability of the renal filter to sugar seemed diminished. Von Noorden[3] also considers that a diseased kidney shows a diminished permeability to sugar.

Weiland[4] has shown that in cases of acute nephritis the blood-sugar level is low, and in chronic interstitial nephritis it reaches the upper limits of normal, while in outspoken uremia there is usually hyperglycemia. He, too, thinks that the development of albuminuria in a diabetic usually has the effect of diminishing the excretion of sugar, on account of diminished permeability of the renal filter. Likewise the low excretion of sugar seen in diabetic coma is frequently associated with a very high increase in blood-sugar, an interrelation which strongly suggests that the low excretion is due to the inability of the kidney to excrete accumulated sugar. It must be assumed, then, that a relation may exist between glycosuria and the kidney, independent of a true metabolic disturbance. The name "renal diabetes" would imply a disorder involving the kidney, and Lüthje[5] cites a case-report to show that glycosuria developed after the appearance of a kidney lesion.

Richter[6] and subsequent workers do not consider active renal disease necessary for the conception of this type of glycosuria, although, according to the theories advanced by Lépine[7] and by Frank,[8] the absence of resorption of sugar by the kidney canaliculae may account for the anomaly. Renal diabetes is "glycosuria without hyperglycemia," analogous in many ways to the toxic glycosuria produced by chromium, uranium or phloridzin (Frank). In fact, Lépine[7] and recently Garrod[9] have proposed that the term "renal diabetes" be dropped and that the phrase "glycosuria without hyperglycemia" be employed in its stead.

Clinically, the condition as reported in the literature is an anomaly, differentiated from true diabetes mellitus by (*a*) the excretion of sugar being entirely or practically entirely independent of carbohydrate intake; (*b*) the blood-sugar being normal or decreased, and (*c*) the clinical course. Early cases of diabetes may not show an interdependence of diet and sugar excretion, so that from a diagnostic point of view the greatest emphasis is to be laid on the blood-sugar determinations. Such determinations have always been considered unsatisfactory, and reports from different clinics or different laboratories have not been comparable because of different technics employed. Therefore, the third element, the clinical course, must also be properly weighed.

In the analysis of cases of so-called renal diabetes in the literature one is struck by the many temporary derangements classified under this head, which to us seems like an unjustifiable neglect of the clinical possibilities. Since so little is known of the early course of orthodox diabetes mellitus, it would seem necessary to prove that a given condition is not true diabetes before labeling it with the name of a distinct entity of unknown etiology and pathology.

Therefore, unless one is willing to accept the term renal diabetes to mean merely a *state* of glycosuria without hyperglycemia, many of the cases described in the literature cannot be considered to prove the existence of a separate disease. Undoubted cases which have conformed to the standards just laid down have been reported. Bönniger's[10] patient was under observation three-quarters of a year, and had had glycosuria for three years. There were none of the usual symptoms of diabetes; the excretion of sugar was practically constant (from 2 to 25 gm.), and was independent of carbohydrate intake; the blood-sugar was normal.

Lüthje's[5] patient was under observation for six months, and had the other characteristics of the condition. Only one of Weiland's[4] three patients was watched long enough to rule out the subsequent development of a true diabetes, although he precludes this possibility on theoretical grounds. Garrod[9] has followed two cases for six and two years, respectively. Buber and Kolisch[11] watched their patient for six months, but the constant

* From the Department of Clinical Research, Michael Reese Hospital.

1. Lépine: Rev. de méd., 1897, xvii, 832.
2. Richter: Deutsch. Arch. f. klin. Med., 1900, xii, 160.
3. Von Noorden: Metabolism and Practical Medicine, 1907, iii, 529.
4. Weiland: Deutsch. Arch. f. klin. Med., 1911, cii, 167.
5. Lüthje: München. med. Wchnschr., 1901, xlviii, 1471.
6. Richter: Deutsch. med. Wchnschr., 1889, xxv, 840.
7. Lépine: Semaine méd., 1913, xxxiii, 457.
8. Frank: Arch. f. exper. Path. u. Pharmakol., 1913, lxxii, 387.
9. Garrod: Brit. Med. Jour., 1913, ii, 850.
10. Bönniger: Deutsch. med. Wchnschr., 1908, xxxiv, 780.
11. Buber and Kolisch: Wien. klin. Wchnschr., 1897, x, 553.

high sugar excretion (5 per cent.) makes it doubtful if this case should be included.

Recently Salomon[12] has described from von Noorden's clinic thirteen cases which fit into the class under discussion. He calls them "diabetes innocens" rather than renal diabetes, and lays great stress on the clinical course. Although some of his patients did show a somewhat increased amount of blood-sugar, he does not consider that this fact makes them true diabetics. The absence of an alimentary hyperglycemia is of special importance in including glycosurias among the innocent group. Call these cases what one will, Salomon has surely shown that there exists a group of glycosurias even in youth which does not progress to orthodox diabetes mellitus.

The observations recently made by Novak, Porges and Strissower[13] and by Frank,[8] that the transitory glycosuria seen in pregnant women belongs to the type of glycosurias without hyperglycemia, suggests at least that the condition is not rare, and that the more extensively blood-sugar estimations are made, the more frequently will the condition be observed. Tachau,[14] Weiland,[4] Frank[8] and others all report cases without symptoms of diabetes, with glycosuria independent of intake, and with normal or reduced blood-sugar, but in none of these was the period of observation long enough to exclude them definitely from the possibility of being unusual onsets of true diabetes. Any studies, however, which throw light on the early clinical course of diabetes and assist in differentiating non-diabetic glycosurias from true diabetes, are at least of empiric interest, and the review of the literature justifies the assumption that a glycosuria without hyperglycemia exists and is not a true diabetes.

Since knowledge of the condition under discussion is so far from being absolute, it seems wise to report in complete detail the interesting case which furnishes the basis for this article.

REPORT OF CASE

History.—The patient was 23 years old, a Jewish man. Nov. 6, 1912, he was refused life insurance because of "diabetes." From this date to Dec. 21, 1912, he was under the care of Dr. Arthur Beifeld, and was being gradually placed under an increasing restriction of carbohydrates. December 21 he was referred to us. At that time he had no complaints whatever, except at the physicians who insisted on finding sugar when he felt so well. No increased thirst, no increased appetite and no polyuria were present. During the period of restricted diet he developed acetonuria and lost weight.

The patient, five years before, had had possibly a mild typhoid fever. He denied lues. Always a good liver, he had eaten about what he wanted and usually consumed plenty of rich carbohydrate food. He indulged in alcoholic drinks very moderately, but smoked cigarettes freely. He was of a nervous, rather excitable temperament.

About one year before, while he was out sleighing in a party, the vehicle was struck by a street-car and the patient was thrown to the street, landing on his head. He was unconscious for a few minutes, but soon recovered, and was able to drive an automobile. He was seen at this time by one of us (A. H. B.), who found nothing indicating a skull fracture. For from three to five days he had intense headache, which then left him without the slightest trace of ill result. A urinalysis made before the accident and one after it showed no sugar.

Most members of the family are of the "high-strung" type, hustling, active mentally and physically. There is no diabetes in the family.

Physical Examination.—The patient is a well-built, well-nourished young man in apparent perfect health. The pupils are equal and react to light and accommodation. The eye-grounds (Dr. Harry Gradle) are negative. Mucous membranes are of good color. Tongue is clean, teeth good, pharynx negative. Ears and nose negative. No palpable glands in the neck or elsewhere in the body. The thyroid is not enlarged.

Chest: Heart and lungs are negative.

Abdomen: This is held everywhere rather rigidly, but when attention is distracted it relaxes. There is no tenderness, and no masses are palpable. Spleen, liver and kidneys are not palpable.

Genitalia are negative. There is no edema of extremities. Careful examination of reflexes shows them all equally active and brisk. No Babinski.

Pulse is 76 to the minute, regular and small; vessel-wall is not palpable. Blood-pressure (systolic) in right brachial artery is 110 mm., in left 105.

Temperature is 98.4, respirations 20.

Blood Examination: Red blood-cells, 5,980,000; white blood-cells, 9,450; hemoglobin, 95 per cent. (Sahli corrected). Differential count—Wright stain: polymorphonuclears, 71; small mononuclears,19; large mononuclears, 8; eosinophils, 1; basophils, 1 per cent.

The Wassermann reaction is negative.

Feces are small, well-formed, acid and brown; they show no mucus, pus or blood. Microscopically, digested food particles are revealed, with no excess of undigested muscle fibers or of fat.

TABLE 1.—EXAMINATIONS OF PATIENT ON CARBOHYDRATE-FREE DIET (SIX PIECES OF BREAD)*

Date	Amt. c.c.	Specific Gravity	Reaction	Sugar, Per Cent.	Sugar, Gm.	Albumin	Acetone	Ferric Chlorid	Ammonium Gm.
12/21/12	†	1.025	Alk.	‡	‡	0	0	0	.....
12/24/12	1,500	1.016	Alk.	0.55	8.25	0	±	0	.....
12/30/12	1,500	1.015	Acid	0.23	3.45	0	±	0	.....
1/ 7/13	2,100	1.017	Acid	0.39	8.19	0	++	0	0.321
1/11/13	3,000	1.018	Alk.	±	?	0	+	±	0.35

* In this table ± means trace, + positive, and 0 negative.
† Plain specimen.
‡ Sugar was not measured as only a plain specimen was examined.

A Roentgen examination of the skull showed no evidence of fracture and no signs of pathologic changes in the sella turcica.

The first twenty-four-hour urine examination was made by us Dec. 24, 1912, at which time the patient was on a restricted diet, containing from four to six pieces of rye bread a day. This and the other office examinations are shown in Table 1.

The reducing body was dextrorotatory, was fermented and gave characteristic crystals with phenylhydrazin.

Jan. 12, 1913, the patient was admitted to the Michael Reese Hospital for further study. During the stay in the hospital he had no *symptoms* except when under complete restriction of carbohydrate, at which time he complained of headache and was inclined to be irritable.

The complete urinary analyses, with corresponding diets, are given in Table 2.

Summary of Findings.—1. A glycosuria practically independent of carbohydrate intake. In fact, the largest excretion of sugar noted is on February 14, after five days of strict carbohydrate-free diet.

2. Neither simple restriction of carbohydrate intake nor the use of "vegetable days" or "oat days" made the patient aglycosuric, except once, for four days.

3. Restriction of protein intake did not reduce the glycosuria.

4. Acetonuria and clinical signs of acid intoxication developed quickly on the withdrawal of carbohydrate from the diet.

Further History.—Feb. 17, 1913, the patient went to Europe, where he consulted von Noorden. He was under observation at von Noorden's clinic from March 11 to March 31, during which time the observations made by us were repeated and

12. Salomon: Deutsch. med. Wchnschr., 1914, xl, 217.
13. Novak, Porges and Strissower: Deutsch. med. Wchnschr., 1912, xxxviii, 1868.
14. Tachau: Deutsch. Arch. f. klin. Med., 1911, civ, 448.

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verified. In addition, two blood-sugar determinations were made—one with the patient on a strict diet, and one while he was taking plenty of starch—and in both cases "normal values were found." In a personal communication von Noorden says, "According to theoretical considerations, the case must be classified under the so-called renal diabetes."

We have been able to follow the patient quite carefully since his return from Europe. We did not advise a strict carbohydrate-free diet, but with some misgivings we allowed him to eat about what he pleased—restricting only the use of sugar. There were certain personal reasons why the patient was anxious to know if the disease could be true diabetes mellitus, and he insisted on using means to bring out any latent evidences of diabetes. Accordingly, he led his usual life, and ate what he pleased. July 15, 1913, he was in excellent physical condition, weighing 160 pounds, felt strong and healthy and had absolutely no symptoms of diabetes, or any complaint whatever. He felt so well then that he even refused to collect a twenty-four-hour specimen, but did give us a plain specimen voided at 11 a. m. This contained 0.8 per cent. sugar, no acetone and no albumin.

At about this time we proposed a lumbar puncture. We reasoned that the whole condition *may* have been due to the the twelfth day it became less intense and disappeared on the fourteenth.

After recovery from this the patient continued his normal life. In October he became engaged to be married, and at varying intervals we saw him and examined the urine. We saw him last, Dec. 24, 1913. He had been leading a very strenuous, active life; had eaten much of all kinds of carbohydrates; had been indulging freely in cocktails and champagne, and had not even limited the amount of saccharose in his diet. In addition, he had been under severe nervous strain. In fact, he was living under ideal conditions to produce a diabetes mellitus. He weighed 160 pounds, had no symptoms of disease, and even though he was very slack on sleep, he "felt fine." The urinalysis of a twenty-four-hour specimen showed: amount, 1,000; acid in reaction; specific gravity, 1.026; no albumin; no acetone; sugar, 0.9 per cent.; 9 gm. The diet for the day included, for breakfast: grapefruit with sugar, three pieces of toast, coffee with two lumps of sugar; for lunch: two rolls, potatoes, pastry, three lumps of sugar in his coffee; for dinner: rolls, potato and pastry.

The patient was again seen, March 19, 1914. He was feeling splendid, weighed 163 pounds and had no symptoms. A plain specimen of urine voided at 12:30 p. m. after a rather

TABLE 2.—COMPLETE URINARY ANALYSES, WITH CORRESPONDING DIETS*

Diet	Date, 1913	Amount, c.c.	Specific Gravity	Reaction	Albumin	Sugar, Per Cent.	Sugar, gm.	Acetone	Ferric Chlorid	Ammonium, gm.	Nitrogen, gm.	Urea, gm.	Casts	Weight, Lbs.
Carbohydrate-free	1/12	†	1.025	Acid	0	+	+	++	±	....	.....	..	0	...
Carbohydrate-free	1/13	†	1.025	Acid	0	++	++	++	±±	....	.....	..	0	151
Vegetables	1/14	1,920	1.020	Alk.	0	±	+	+	0	....	.....	..	0	149
Oat gruel, 250 gm., and vegetables	1/15	720	1.030	....	0	0	0	++	+	0.25	.....	..	0	...
Same	1/16	1,170	1.030	....	0	0	0	++	±	0.28	.....	22	0	...
Same	1/17	2,220	1.012	....	0	0	0	+	±	0.11	.....	24	0	149
Vegetables, oat gruel, 100 gm., meat, eggs	1/18	2,430	1.015	....	0	0	0	++	±	0.13	.....	46	0	...
Same	1/19	1,980	1.016	Alk.	0	0.119	2.36	++	±	0.18	.....	..	0	...
Carbohydrate-free	1/20	2,520	1.017	Alk.	0	0.15	3.78	++	±	0.10	.....	30	0	...
Bread, 50 gm.	1/21	2,520	1.021	Alk.	0	0.2	5.25	++	±	0.12	.....	50	0	...
Bread, 75 gm.	1/22	2,520	1.022	Alk.	0	0.26	6.5	+	0	0.55	.....	..	0	...
Bread, 100 gm.	1/23	1,560	1.025	Alk.	0	0.14	2.18	±	0	0.99	.....	37	0	149½
Bread, 125 gm.	1/24	1,560	1.024	Alk.	0	0.25	3.9	±	0	0.57	.....	31	0	...
Bread, 150 gm.	1/25	1,590	1.020	Alk.	±	0.19	3.1	±	0	0.39	.....	22	0	...
Bread, 150 gm. potato, 40 gm.	1/26	1,780	1.020	Alk.	±	0.4	2.83	±	0	0.76	.....	25	0	...
Bread and potato, 250 gm.	1/27	1,440	1.025	Alk.	±	0.17	2.43	±	0	0.34	.....	23	0	...
No meat; carbohydrate, 200 gm.; 4 to 6 eggs	1/28	1,230	1.030	Alk.	±	0.26	3.2	±	0	0.61	.....	30	0	...
Same	1/29	1,560	1.022	Alk.	±	0.17	2.65	0	0	0.7	9.59	28	0	...
Same	1/30	1,560	1.015	‡	±	0.29	4.5	0	0	0.64	8.51	23	0	...
Same	1/31	1,020	1.021	Acid	±	0.31	3.18	0	0	0.7	8.99	18	0	...
Meat once a day, bread, 100 gm.	2/ 1	1,020	1.021	Acid	±	0.26	2.68	±	0	0.97	6.57	22	0	...
Bread, 50 gm.	2/ 2	1,380	1.018	Alk.	±	0.25	3.45	±	0	0.92	6.95	26	0	...
Carbohydrate-free	2/ 3	2,220	1.017	Alk.	±	0.26	5.75	±	0	0.9	11.5	28	0	...
Carbohydrate-free	2/ 4	1,410	1.024	Alk.	+	0.185	2.61	0	0	0.48	.....	31	0	...
Carbohydrate-free	2/ 5	1,860	1.022	Alk.	0	0.2	3.76	0	0	0.54	9.37	33	0	...
Vegetables	2/ 6	1,890	1.026	Alk.	0	0.18	3.4	0	0	0.45	.....	34	0	...
Oat gruel, 250 gm.	2/ 7	1,260	1.024	Alk.	0	0.16	2.02	±	0	0.38	.....	37	0	150
Same	2/ 9	2,190	1.012	Alk.	0	0.12	2.67	0	0	0.74	.....	..	0	...
Carbohydrate-free	2/10	2,610	1.015	Alk.	0	0.13	3.43	0	0	1.4	.....	..	0	...
Carbohydrate-free	2/11	1,890	1.012	Alk.	0	0.1	1.89	0	0	0.71	.....	..	0	...
Outside of hospital; carbohydrate-free 5 days	2 14	1,680	1.025	Alk.	0	0.5	9.24	+	+	0.37	.....	..	0	...

* In this table + means positive, 0 negative, ± trace and ++ strongly positive. † Plain. ‡ Amphoteric.

head injury in 1911, and might therefore be the result of hypophyseal hyperactivity. While it is true that the work of Cushing and his coworkers[15] indicates that glycosuria due to the hypophysis would be associated with hyperglycemia, nevertheless the interesting practical result of the lumbar puncture in Herrick's[16] case of diabetes insipidus seemed to warrant the procedure from a practical as well as a theoretical point of view. Accordingly, on July 30 the lumbar puncture was performed and the fluid analyzed by Dr. Dean Lewis. From 15 to 20 c.c. of a clear fluid under decided pressure were withdrawn. The blood-pressure tracings made by Dr. Lewis gave no sign of a pressure-raising substance.

The effect on the patient was quite unexpected. There was no change in the urine, either in amount passed or in the sugar excretion, but the day after the puncture the patient began to complain of intense headache and gastric distress. The headache was intractable and lasted for two weeks. It did not yield to phenacetin, pyramidon or bromids, but toward

15. Johns Hopkins Hosp. Bull., 1911, xxii, 165.
16. Herrick, James B.: Report of a Case of Diabetes Insipidus with Marked Reduction in the Amount of Urine Following Lumbar Puncture, Arch. Int. Med., July, 1912, p. 1.

heavy carbohydrate breakfast was acid, had a specific gravity of 1.016 and showed no albumin or acetone. The reduction of Haines' solution was so slight that at first the test was called negative, and it became positive only after standing. Quantitatively 0.2 per cent. sugar was found.

A blood-sugar determination showed the lower limit of normal.

A review of this unusual case shows a healthy young man in whose urine glucose was accidentally discovered during a life-insurance examination. The discovery of glucose followed about one year after a cranial trauma, but whether the two are related belongs entirely to the field of speculation. There were never any symptoms of diabetes mellitus. The excretion of dextrose has been practically independent of carbohydrate intake. The blood-sugar twice determined in von Noorden's clinic was normal. Furthermore, under conditions which in a man of his age would certainly intensify the symptoms and increase the severity of a true diabetes mellitus, the patient has continued to remain in perfect health, and

the urine has not taken on the characteristics of urine in diabetes mellitus. Therefore, not only does he fill the standards of renal diabetes, but also the clinical course of the case almost surely excludes the diagnosis of diabetes mellitus.

104 South Michigan Avenue.

THE ROENTGEN RAYS IN THE DIAGNOSIS OF GALL-STONES AND CHOLECYSTITIS

AN IMPROVEMENT IN TECHNIC *

GEORGE E. PFAHLER, M.D.
PHILADELPHIA

Shortly after the Roentgen rays had proved their value in the diagnosis of urinary calculi, a number of investigators made an effort to demonstrate biliary calculi, and in 1901 I conducted a series of experiments on the cadaver, and repeated them the following year, but discarded the method as being useless and unreliable.

The following difficulties are encountered in the diagnosis of gall-stones:

1. Their density differs little from the surrounding bile, and with this shadow of the bile we must reckon the shadow cast by the liver, which is also more or less saturated with bile. If the gall-bladder contains little bile the stones can be more easily demonstrated. If the biliary calculi are composed partially of calcium salts, they can be then more easily detected. Therefore, the greater the quantity of bile surrounding the gall-stones in the gall-bladder, or the liver, and the less the density, the greater will be this difficulty. Because of less surrounding bile, calculi in the common duct are more easily shown than in a distended gall-bladder.

2. Pure cholesterin stones can sometimes be recognized by their increased transparency as compared with the liver — giving a sort of mottled appearance. Especially is this true when they are covered with a thin deposit of lime. Biliary calculi occur more frequently in stout persons. Therefore, one meets the same difficulties that are involved in examining stout persons with renal calculi. The small shadow cast by the stone must be differentiated from the shadow cast by a great mass of soft tissues. In such cases, not only are we confronted with the density of a great mass of soft tissue, which in itself lessens the differentiation of our shadows, but we must also contend with the secondary radiation from this mass of soft tissue which by its cross-rays tends to obliterate the sharpness of differential shadows.

Therefore, the stouter the patient, the more difficult will be our task, though one must not conclude that the examination is impossible on this account. In a number of cases in which shadows of the calculi were shown the most clearly, the patients were very stout.

3. On account of the faint differentiation of the shadow of a gall-stone, it is necessary to have the liver and gall-bladder absolutely still. This can be accomplished by carefully training the patient to hold the breath, and by applying as much compression as possible.

4. It has been shown by a number of men that overexposure or underexposure, even when the stones are laid on the plate, will nearly obliterate the shadow. A very high or a low vacuum will have the same effect. Therefore the length of the exposure and the degree of vacuum must be correct. This necessitates a number of plates, made with different time of exposure and different vacuum.

5. One must differentiate the shadow of gall-stone from that cast by calcified costal cartilages, renal calculus and fragments of bismuth, pills or other substances in the stomach or bowel.

In 1910, realizing that our improvements in technic should give us more satisfactory results in the diagnosis of biliary calculi, I renewed my efforts, and in October of that year presented a paper[1] on this subject before the American Roentgen Ray Society.

Since that time a number of investigators have taken up the work. Both Case and myself believe now that about 50 per cent. of gall-stones can be demonstrated, but that negative findings never can be interpreted as indicating the absence of gall-stones.

TECHNIC

1. *Preparation of Patient.*—The patient should be thoroughly purged. For this I prefer a bottle of magnesium citrate. If possible, the stomach should be empty. Therefore, I prefer to give a purgative in the evening and make the examination the next morning before the patient has eaten breakfast. In this way one eliminates the confusing shadows due to gastro-intestinal contents. One also reduces somewhat the total bulk of substance through which the rays must pass.

2. *Position of Patient.*—Having removed all clothing in the line of exposure, I place the patient on the abdomen with the plate under the gall-bladder region. The arms are extended toward the head so that the patient is resting with the chest, elbows and face flat on the table. The upper part of the body is then bent strongly to the left (not rotated). This opens the space between the lower ribs and the crest of the ilium to the widest possible angle, through which the rays can best reach the gall-bladder. Now I generally add a second examination by passing the rays directly through the liver, between the eleventh and twelfth ribs. This position will serve to differentiate foreign substances or concretions in the bowel. I believe this to be an improvement. I have found a third position useful. It consists in taking a board that will support an 8- by 10-inch plate, and with the patient in the position described above, it is placed under the abdomen, with the edge of the board toward the patient's feet. It is made to dip deeply into the abdomen by placing a triangular block under this lower edge. This brings the plate in closer contact with the gall-bladder.

3. *Position of the Tube.*—The tube with the compression-cylinder diaphragm (Albers-Schonberg) is set so that the rays will pass obliquely through the space between the last rib and the crest of the ilium toward the gall-bladder. By means of the diaphragm cylinder we eliminate many of the secondary rays which in the early days made this work impossible. At times a certain amount of compression can be added, which will lessen the total bulk of tissue, and lessen the distance of the tissue and the diaphragm from the plate.

4. *Exposure.*—This should be made as short as possible, and must of necessity be made while the patient is holding the breath. A little time should be spent in training the patient in holding the breath absolutely still. The absolute time cannot be set, for it will depend on the power of the apparatus, and on the skill of the

* Read before the Philadelphia County Medical Society in a symposium on gall-bladder disease, March 11, 1914.

1. Pfahler, G. E.: Am. Quart. Roentgenol., April, 1911.

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operator, who must judge quickly at the time, according to the working of the tube. I agree with Rubaschaw[2] that several exposures are generally necessary with different tubes and different times.

5. *Vacuum of the Tube.*—This should be the same as that used in making kidney examinations, and should register from Nos. 6 to 7 on the Benoist scale.

6. *Improvement in Technic for the Demonstration of Less Opaque Calculi, the Outline of the Gall-Bladder and the Under Surface of the Liver.*—Inflation of the Colon and Stomach: After making the preceding investigation one will sometimes be able to demonstrate cholesterin stones and those containing a very minute quantity of calcium salts, which would otherwise be overlooked, by inflating the colon with air. Case suggested this for the demonstration of the lower border of the liver. For this purpose I use a moderate-sized rectal tube, and attach to it an atomizer bulb. With the patient on the fluoroscopic table I then gradually dilate the colon with air, watching the effect until the patient complains of some discomfort and until the lower border of the liver is well outlined. I then make some plates of the lower border of the liver in this position. With a screen directly over the liver, and with a small diaphragm, I watch until the gall-bladder is outlined. One or more plates are then made in this position. The patient is then placed in the vertical posture, which permits the gas to rise more definitely to the upper portion of the colon, and in this way outline the lower border of the liver more fully. When this procedure is not sufficient, or when the left lobe of the liver is under special consideration, air is pumped into the stomach by means of a stomach-tube, or the stomach is distended by means of a Seidlitz powder.

When it is necessary to study the stomach and colon by the bismuth method following this examination, the patient should be placed back on the fluoroscopic table, and the air expelled from the colon through the rectal tube. If this is not done the excess of gas in the colon will distort the stomach and interfere materially with the examination. All of these procedures must, of course, be modified to suit the particular portion of the stomach, or bowel, that is under examination. I find it very difficult to establish any routine method of examination. The technic must be modified in each case according to the probabilities of the diagnosis. After eliminating the air from the colon it can then be injected by the opaque solution, and the bowel studied regularly. It is sometimes difficult to eliminate all the air from the colon, and when obstruction or constriction of the bowel is under serious consideration, it should not be injected for preliminary study. This injection of the colon also interferes with the evidence of adhesions about the duodenum. One must therefore decide what evidence can be sacrificed best.

General Procedure: In general, I make a plate of the right kidney, then turn the patient on the abdomen in Position 1, and make two or more plates; then place the tube over the liver and make another plate in Position 2; then one in Position 3. I then inject the colon and make several plates.

Renal Calculus.—In one patient who had the symptoms of gall-bladder disease, I found a stone in the upper part of the right kidney. This can be determined usually by using the customary technic for a kidney examination, when the shadow of the stone will be more distinct and smaller.

2. Rubaschaw: Fortschr. a. d. Geb. d. Roentgenstrahl., xxi, 533.

Calcareous Deposits.—In the costal cartilages calcareous deposits are liable to occur in streaks, to be found on both sides and not to be confined to the region of the gall-bladder. There is, of course, nothing to prevent the occurrence of both gall-stones and calcifications in the costal cartilages in conjunction. In such instances the absolute differentiation is almost impossible.

The possibility of artefacts will occur to every experienced roentgenologist; but this can be eliminated by a repetition of the examination, and by multiple exposures on different plates.

Pericholecystitis.—In the diagnosis of cholecystitis by means of the Roentgen rays, the evidence obtained is less direct. One may find an enlarged gall-bladder at times without special technic, during the course of a general gastro-intestinal examination. This is recognized by the displacement of gas in the colon (there is usually some gas present in the hepatic flexure in the upright position), or by displacement of the bismuth content in the duodenum or colon. The enlarged gall-bladder can be demonstrated further by the injection of the colon with air.

Pericholecystitis is liable to be followed by or associated with adhesions to the duodenum or colon. By inference when adhesions of the duodenum are found this may indicate a preceding or associated cholecystitis. The interpretation of adhesions in the gall-bladder region must be made with great care. When in a relaxed, thin abdomen one finds the duodenum drawn up and to the right, to the under surface of the liver, moving upward with the diaphragm or liver, and occupying a relatively abnormally high position with relation to the normal attachments, one has little difficulty in deciding that adhesions are present. This is especially true when there is associated evidence in these cases of adhesions about the hepatic flexure, and when there is associated deformity in the outline of the duodenum; but when these conditions are not all present, and when one is dealing with a patient who is well nourished or even at times fat, the recognition and demonstration of adhesions is difficult, and should be interpreted with the greatest care, for a fat abdomen naturally holds the stomach high and crowds the stomach and duodenum up close to the liver. Sometimes one can hold a stomach down in such cases, and determine whether or not, during the forced expiration, the duodenum moves disproportionately upward with the liver.

In an effort to determine as nearly as possible the value of the Roentgen rays in the special studies of the gall-bladder, I have tried to trace the various cases that have been studied. I have received reports concerning fifty patients. Of these, seventeen have not yet been operated on, and therefore must be eliminated from our conclusions. Thirty-three have been operated on. Of this number stones were found by me in twenty. Stones were found by the surgeon in twenty-seven. The probability of stones was diagnosed in two others, which were not found. A probable diagnosis of stones was made in seventeen other cases, in which the patients have not yet been operated on, but in which the evidence obtained was strong enough to be reduced to lantern-slides. In all, twenty-seven patients had gall-stones removed by the surgeon. Of this number, twenty, or 74 per cent., were demonstrated by the Roentgen rays. I believe that this percentage is high, and that in general not more than 50 per cent. can be shown, unless, perhaps, by the improved technic described, which has been employed only in recent cases.

My percentage of positive findings is unusually high, probably because I have been making the effort to find the gall-stones. Contrary to Case[3] and Cole,[4] I do not expect to find the gall-stones during a bismuth study of the gastro-intestinal tract, but make a direct preliminary study for gall-stones by the special technic which I have described, and then follow with the bismuth study. In only one of the thirty-four cases in which I have found evidence of gall-stones did I find the stones during the bismuth study of the gastro-intestinal tract, and in that case the stones were so dense that no one could overlook them. Stones containing a high percentage of lime-salts can of course be demonstrated in this way, but in most of my cases the stones contained very little lime-salts, and could be seen only on a very clear plate by careful oblique illumination.

Likewise for the demonstration of these light stones, screens, as recommended by Cole, are unreliable. In nearly all cases I used screened and unscreened plates, and rarely was able to recognize the stones on the intensified screen plates.

CONCLUSIONS

1. Gall-stones can be shown only when they are composed of a substance of greater or less density than the surrounding tissues. This will usually mean that they must contain some lime-salts, though this quantity may be small.

2. My records show positive findings in 74 per cent., but I believe in general one cannot count on more than 50 per cent. being demonstrable. I believe that a negative diagnosis at present has no value.

3. It is possible that with the improved technic, when we find the gall-bladder small, and still find no stone, it may become of some value in negative diagnosis.

4. The estimation of the value of this method of diagnosis must be based only on the work of roentgenologists who have mastered a good technic, and who are thorough in their work.

5. Definite information will be obtained only by continued cooperation of the surgeon and the roentgenologist.

6. In the future I believe that we shall obtain valuable information concerning the liver and spleen by the roentgen method described.

1321 Spruce Street.

THE ABSORPTION AND TENSILE STRENGTH OF CERTAIN ABSORBABLE ANIMAL LIGATURES

A PRELIMINARY REPORT

WILLIAM GRAY PHILLIPS, JR., M.D.
BROOKLYN

While much laboratory work has been done on the standardization of various therapeutic agents, before their introduction into the human organism, suture materials have, up to the present, been neglected. Too often the poor quality and careless preparation of catgut have been discovered only by its postoperative ill effects, whereas previous experiment might have averted such accidents.

This report is the result of 119 implantations, in animals, of various sizes and preparations of catgut and kangaroo tendon. The animals used to yield the final standardization results were robust Belgian hares and small healthy dogs. It was noticed, that in a few of the animals which became infected with a disease characterized by a nasal catarrh and emaciation, the absorption period of the ligatures was much delayed. This may be the reason why in some patients the absorption time has been exceeded and may be due to a decrease in metabolic processes dependent on a lowered vitality.

In five of the cases in which the dressings were purposely not applied to the experimental incisions a staphylococcus infection was noted. In these cases the absorption of the ligatures was much delayed and sutures removed from the wounds were found covered by a cheesy exudate consisting of dead leukocytes, fibrin and detritus, which could be scraped from the attenuated suture, but which formed a coating sufficiently dense to prohibit the free access of tissue fluids and cells.

The catgut standardized so far has been prepared by the cumol method of Krönig, and has been compared with catgut prepared by different manufacturers using the same method, and also with catgut prepared by the liquid petrolatum and iodin method of Bartlett. Although catgut prepared by the latter process has less tensile strength and may not be heated, it otherwise has about the same properties as catgut sterilized by the cumol method.

TABLE 1.—ABSORPTION PERIOD

Nature of Material	Tissue of Implantation	Absorption Period
Plain Catgut—		
Size		Days
00	Human prepuce (circumcision)	7
0	Muscle	11
0	Fascia	10
1	Muscle	13
2	Muscle	16
3	Muscle	21
Chromic Catgut "20-day"—		
1	Peritoneum	18
1	Muscle	22
1	Fascia	20
2	Muscle	20
3	Fascia	20
Kangaroo Tendon—		
Fine	Peritoneum	30
Fine	Fascia	30
Medium	Fascia	38

An important yet simple process, which, in the manufacture of chromic catgut, is frequently omitted or done in a careless manner, is the neutralization of the potassium bichromate in the catgut after the chromicizing bath. If this neutralization is not carefully carried out, the formation of a sinus extending outward from the offending suture often results, adding five or ten days to convalescence and sometimes interfering seriously with the proper healing of the wound.

From certain of the animals the suture materials were removed at various periods before absorption was complete, and then were tested as to their tensile strength. This has been done in only a few cases, and the series is not yet complete.

In the case of kangaroo tendon it was found that the period of absorption as usually stated is too long. Some of the tendons had disappeared by the thirtieth day, except in a few cases in which the tendon was attenuated to very thin strands, the size of fine hairs.

A rather unexpected result was the slightly more rapid disappearance of sutures from fascia than from muscle. If both specimens were unabsorbed there was invariably more attenuation of the catgut implanted in the fascia, and in cases in which the suture had disappeared from the fascia, small strands were found in the muscle.

3. Case: Arch. Roentgen Rays, September, 1913, 135.
4. Cole: Surg. Gynec. and Obst., February, 1913.

In our experiment with plain catgut it was surprising to notice the increased absorption time in all specimens. That cumol has nothing to do with this was shown by similar tests with gut prepared by other methods.

As yet it has been impracticable to implant the coarser grades of kangaroo tendon in rabbits and dogs. On account of the stiffness and roughness of the suture material the implantation produces trauma in the more delicate tissues.

TABLE 2.—TENSILE STRENGTH

Size	Plain Catgut Before Implantation Pounds	Plain Catgut Implanted 5 Days Pounds	Chromic Catgut Before Implantation Pounds	Chromic Catgut Implanted 5 Days Pounds	Chromic Catgut Implanted 10 Days Pounds
00	12	....	10	7.5	6.5
0	20	8.5	17.5	10.5	8.5
1	25	11	23	13.8	9.5
2	33	14.5	30.5	18.7	14.5
3	40	21	37.7	26.5	....

"30-day Chromic" No. 0 at 9 days gave 16 pounds.
"30-day Chromic" No. 2 at 5 days gave 22 pounds.
"40-day Chromic" No. 2 at 5 days gave 28 pounds.

The figures in Table 2 indicate the breaking-point of the various kinds of suture materials when submitted to a sudden quick jerk.

I wish to express to Dr. Cassius H. Watson my sincere appreciation for aid and advice during the progress of these experiments and also my indebtedness to Dr. Henry A. Fisher and to Dr. William F. McKenna for their valuable assistance.

1899 Bedford Avenue.

A CLINICAL METHOD FOR THE RAPID ESTIMATION OF THE QUANTITY OF DEXTROSE IN URINE

SIMON B. KLEINER, PH.B.
NEW HAVEN, CONN.

Methods for the clinical determination of the quantity of dextrose in urine have never been very satisfactory. Practically the only method used to any extent is that which employs the Einhorn fermentation saccharimeter. This method is very inaccurate, errors resulting from differences in the activity of the yeast used and in the temperature at which the instrument is kept while fermentation is proceeding. Another disadvantage of the fermentation procedure is that several hours at least must elapse before a final reading can be made.

Recognizing the inadequacy of this method, I have attempted to devise a method for the colorimetric determination of dextrose in urine which is simple, fairly accurate and rapid. Several colorimetric methods for the determination of dextrose in urine have been described. Among these are the methods of Neitzel,[1] Ruini,[2] Järvinem[3] and Dehn and Hartman.[4]

These methods, however, are hardly suitable for the use of the physician. Nor is the method of Autentrieth[5] and his co-workers easily carried out in the office of the practitioner. This method requires the use of Bang's[6] solution, and necessitates the decolorization of most urines.

1. Neitzel: Chem. Ztg., 1894, 290.
2. Ruini: Gazz. chim. italiana, 1901, xxxi, Part II, 445.
3. Järvinem: Ztschr. f. anal. Chem., 1913, lvii, 14.
4. Dehn and Hartman: Jour. Am. Chem. Soc., 1914, xxxvi, 403.
5. Autentrieth and Tesdorf: München. med. Wchnschr., 1910, No. 34, 1780. Autentrieth and Müller: München. med. Wchnschr., 1911, lviii, 899. Autentrieth and Funk: München. med. Wchnschr., 1912, lix, 689.
6. Bang: Biochem. Ztschr., 1906, ii, 271.

The Autentrieth method has been modified by Forschbach and Severin[7] for the colorimetric estimation of dextrose in blood; about thirty minutes is required for this procedure, and the method is quite successful.

My method is exceedingly simple and the time required for an estimation is from ten to twelve minutes. Besides an ordinary glass funnel and filter paper, test-tube and Bunsen burner, the only apparatus necessary is:

1. A small graduated cylinder, or a 15 c.c. pipet.
2. A 1 c.c. pipet.
3. A 7-inch test-tube.
4. Set of standard vials.
5. An extra vial.

The reagents are:

1. Benedict's solution[8]
2. Strong ammonium hydroxid solution.

This solution is prepared as follows:

	Gm.
Copper sulphate	17.3
Sodium citrate	173.0
Sodium carbonate (anhydrous)	100.0

Dissolve the copper sulphate in from 100 to 150 c.c. of distilled water and add slowly, with stirring to a filtered solution (about 800 c.c.) of the other ingredients and make up to one liter.

The procedure is as follows: To 15 c.c. of Benedict's solution, 1 c.c. of urine is added (from the 1 c.c. pipet). The mixture is put into the 7-inch test-tube and is boiled four minutes. It is then filtered. Into the "extra vial," 5 c.c. of this filtrate and 1 c.c. of ammonium hydroxid solution are placed and the color of this solution is compared with the standard vials, the preparation of which is described below.

In the boiling, a certain amount of copper in the Benedict solution is reduced, leaving amounts of unreduced copper in the solution corresponding inversely to the quantity of sugar in the urine used. The ammonium hydroxid forms ammonium copper salts, giving a deep blue color and insuring, consequently, greater ease in comparing the color in the unknown solution with the standard vials, than if the untreated filtrates were compared. The standard vials that I used were ordinary 2-dram, long homeopathic vials, rubber-stoppered, and the solutions in them were prepared by the reduction of standard dextrose solutions of 0.0, 0.5, 1.0, 1.5, 2.0 and 2.5 per cent. in the same manner which has been described above.

It has been found convenient to have the "extra vial" marked at 6 c.c., then 1 c.c. of ammonium hydroxid can be placed in the vial first and filtrate is added to the mark on the vial.

Estimations have been made of the quantities of dextrose in urine by fermentation, polariscope, and the method described above. The results of these estimations are given in the accompanying table.

There are a few minor disadvantages about this method. In the first place, the estimations are practically all a bit higher than the polariscopic readings. Several factors no doubt contribute toward this error, which, however, is almost constant, and there are no inconsistent variations such as occur in the fermentation method. The range of the apparatus is small, but in more concentrated urines, dilution can be resorted to, and no appreciable error will result (*H, K*, in table). On the other hand, the range of the fermentation

7. Forschbach and Severin: Arch. f. exper. Path. u. Pharmak., 1912, lxviii, 340.
8. Benedict, Stanley R.: Jour. Biol. Chem., 1911, ix, 57; The Detection and Estimation of Glucose in Urine, THE JOURNAL A. M. A., Oct. 7, 1911, p. 1193.

saccharimeter is limited to 1 per cent., and dilution as well as the quality of the yeast seems to modify its exactness considerably.

While the polariscope no doubt offers a very accurate means of determining quantities of glucose in urine, it has, however, two drawbacks. First, in cases of acidosis, it is necessary to rotate the urine before and after fermentation, as levorotatory substances present cause a considerable error, as is shown in the table (*K*). And, as fermentation consumes several hours, the rapidity of polariscopic determinations is diminished in these cases. Secondly, because of its considerable cost, the polariscope is not available to most physicians.

There are several advantages of the method of determining dextrose described above. The apparatus and reagents are simple and easy to procure. The ammonium hydroxid which I used was ordinary strong household ammonia. Benedict's solution is familiar to almost every physician; it keeps indefinitely, is very delicate and is rapidly replacing Fehling's solution. A liter can be prepared by anyone in twenty minutes at a ridiculously low cost.

TABLE OF ESTIMATIONS OF THE QUANTITY OF DEXTROSE IN URINES

	Fermentation* Per Cent.	Polariscope Per Cent.	Author's Method Per Cent.
A.	0.04	0.10	+
B.	0.48	0.43	0.5
C.	0.96	0.94	1.0
D.	1.68	1.44	1.0-1.5
E.	2.8	2.91	3.0
F.	1.56	1.52	1.5-2.0
G.	1.2	1.69	2.0
H.	2.4	5.2	5.25
I.	0.48	1.42	1.5
J.	0.2	2.0	2.25
K.†	2.2	4.19‡	....
		4.48§	4.5

* Fermentations were done under the same conditions as regards temperature.
† Urine was levorotatory after fermentation.
‡ Without fermentation.
§ With fermentation.
± Reaction positive, but less than 0.5.

The advantage of Benedict's over Bang's solution appears to me to be the fact that the former solution contains more copper sulphate per liter, and consequently less reagent is needed for the same quantity of urine, and decolorization of the urine is not necessary, because of the small amount of urine used, and because of the deep blue of the end-reaction.

It is possible that instead of making standards from actual determinations, standard bottles of a solution of a copper salt, for example, ammoniated copper ($CuSO_4(NH_4)_2SO_4 . 6H_2O$) can be made and provided, either in sets of standard tubes, or for colorimeters. Experiments toward this end, as well as comparisons of this method with gravimetric determinations will be pursued at a future date.

It seems, at present, probable that this method for rough quantitative sugar estimation, merely for clinical work, will be highly satisfactory.

I wish to extend my thanks to Dr. Lafayette B. Mendel of the Sheffield Scientific School of Yale University for his kind advice and for the use of the facilities of the biological laboratory of that institution.

39 Howe Street.

Efficient Versus Effective Health Departments.—A health department may be 100 per cent. efficient but only 15 per cent. effective by reason of a penny-wise and health-foolish policy in apportionment of funds for operation.—*Bull. Chicago School of Sanitary Instruction.*

A NEW FLUOROSCOPIC SIGN FOR THE DIFFERENTIATION OF PYLORIC SPASM OF EXTRAGASTRIC ORIGIN

FROM THAT ASSOCIATED WITH UNCOMPLICATED GASTRIC ULCER ON OR NEAR THE LESSER CURVATURE

FRANK SMITHIES, M.D.
Gastro-Enterologist to Augustana Hospital
CHICAGO

In young adults of both sexes the most common cause of gastric hyperacidity is pyloric spasm, associated with subacute or chronic inflammation of the appendix or gall-bladder, or both. This hyperacidity is not infrequently complicated by hypersecretion. These facts have been established by my personal study of 7,041 consecutive test-meal analyses at the Mayo Clinic and at Augustana Hospital. In 2,183 cases operative proof, with consideration of the postoperative course, was possible.

On account of clinical symptoms and signs, this group of cases is frequently confused with, or diagnosed as, "medical" gastric ulcer of the young. The clinical manifestations are: acid dyspepsia, epigastric distress and tenderness, occasionally nausea and vomiting, fluctuations in appetite, anemia and "hunger pain." Test-meal examinations of such patients generally reveal intermittent gastric stagnation (4 per cent.), hyperacidity and, if the ailment has persisted for an average time of 2.8 years, hypersecretion, periodic or continuous.

These observations are abundantly supported by the experimental work of Eppinger and Hess,[1] and by the clinical reports of Graham,[2] Aaron[3] and Baar.[4]

In persons of the type under consideration, however, gastric ulcer associated with pyloric spasm not uncommonly occurs. My records show that this happens in approximately one out of nine such cases. With the exception of those instances in which hematemesis or melena has been demonstrated, the clinical manifestations most closely simulate those associated with pyloric spasm from appendix or gall-bladder disease. Inasmuch as, clinically, there is no differentiating feature, the problem in this 11.1 per cent. of cases becomes an important one from the points of view of diagnosis, prognosis and treatment. Both the extragastric and the intragastric lesions may be confused, or in the recognition of the former, the latter may be overlooked.

The recent rapid development of fluoroscopic examination of the stomach containing material opaque to Roentgen rays has contributed much to our better understanding of the factors underlying the clinical exhibition of pyloric spasm. By this diagnostic procedure, fully 60 per cent. of calloused and complicated ulcers are readily recognized and located with fair accuracy. Acute ulcers or those involving the pyloric half of the stomach or near the lesser curvature (particularly if these are of the uncomplicated type) must be judged to exist largely in the light of clinical history and laboratory data. This group furnishes the great majority of incorrect Roentgen-ray diagnoses. At laparotomy, appendix or gall-bladder disease is the usual finding when the mistake has been made. This fact has been commented on by Case,[5] Carman[6] and others. I have satisfied myself on

1. Eppinger and Hess: Ztschr. f. klin. Med., lxvii, 205, and lxviii, 345.
2. Graham: Collected Papers of the Mayo Clinic, ii, 39, 1910.
3. Aaron: Arch. f. Verdauungskr., 1913, xix, 344.
4. Baar: Die Indikanurie, 1913.
5. Case: Jour. Michigan State Med. Soc., 1913, xii, 577.
6. Carman, R. D.: Mayo Clinic, personal communication to the author.

this score from a personal study of the reports of more than 1,600 Roentgen-ray examinations of gastric function.

In the group of cases with the type of pyloric spasm under discussion, routine examination by the fluoroscopic screen presents very similar pictures. The evidence in these hyperacidity cases is: hypertonic stomach, vigorous peristalsis, rapid visualization of the duodenum, tenderness or muscle spasm over the region of the pylorus, and possibly abnormal contractures on the greater curvature, which are readily mistaken for incisurae. There may be "physiologic" hour-glass stomach.

From a somewhat extensive experience, I have found the following fluoroscopic observations of value in the differentiation between the pyloric spasm associated with uncomplicated ulcer near the lesser curvature and that present when the lesion is solely in the appendix or gall-bladder:

1. *Technic*—The motor function is estimated by examination for evidences of the bismuth or barium meal at the end of a six-hour interval following its administration. The patient is then screened during and after his taking a standard buttermilk-bismuth (or barium) suspension.

2. *Similar Findings.*—(*a*) Unless marked gastric atony is present, rarely retention of the motor meal; (*b*) hypertonic stomach; (*c*) usually vigorous gastric peristalsis; (*d*) prompt visualization of the duodenum; (*e*) free movement of the stomach, laterally or vertically, by palpation or kneading; (*f*) tenderness to moderate or deep pressure over the pyloric region.

3. *Variable Findings.*—(*a*) Abnormal peristaltic waves, that is, true incisurae or incisura-like niches on the greater curvature, especially if the stomach is kneaded or tapped; (*b*) tender areas along the lesser curvature which move with change of position of the stomach; (*c*) tenderness in the midepigastrium, in the right iliac fossa or in the anatomic region of the gall-bladder.

4. The patient then receives $^1/_{50}$ grain of atropin sulphate hypodermatically. He is rescreened in a half hour. If much of the bismuth or barium mixture has left the stomach, more should then be given.

5. *Findings at Second Examination.*—(*a*) In true, uncomplicated ulcers on or near the lesser curvature, palpation carried on vigorously along the lesser curvature will usually locate a point of maximum tenderness. Palpation at this point will generally be accompanied by such permanent spasm of the circular muscle fibers of the stomach wall as to bring out a readily recognizable incisura on the greater curvature. This is approximately at the same level as the local tender area on the lesser curvature. The phenomenon may be elicited with the stomach moved laterally or vertically. The incisura thus brought out after atropin is readily distinguished from normal peristalsis. Tenderness over the pyloric region is a variable finding. There may be spasm or tenderness in the gall-bladder or appendix regions if these parts are also diseased.

(*b*) In cases of pyloric spasm associated with appendix or gall-bladder lesions but with no gastric ulcer present, vigorous palpation along the lesser curvature may be accompanied by evidence of tenderness, but fails to delimit local foci of distress associated with incisurae or incisura-like niches along the greater curvature, or areas of local tenderness that correlate with the stomach on its being moved about. Tenderness over the pars pylorica is a variable finding. Tenderness in the right iliac fossa or in the gall-bladder region (especially at the end of deep inspiration) is often exhibited.

6. Reexamination of the patient on different days should demonstrate the constancy of the differential sign outlined above.

122 South Michigan Boulevard.

THE EFFECT OF OPERATION ON KIDNEY EXCRETION AS INDICATED BY THE PHENOLSULPHONEPHTHALEIN TEST *

FRANK BENTON BLOCK, M.D.
PHILADELPHIA

Although the use of phenolsulphonephthalein in estimating kidney function is of only a few years' standing, it is to-day probably the most accurate index of renal elimination which we possess. It has been put to test all over the world and in all classes of cases with a resulting uniform praise of its accuracy, being considered superior to a chemical and microscopic examination of the urine in showing the actual work that the kidneys are doing.

Geraghty says that albumin and casts are no index of the severity of a kidney lesion, being present frequently in marked degree when the pathologic change in the kidney is slight, while on the other hand severely damaged kidneys may be present when there are very few abnormal constituents in the urine, whereas the phenolsulphonephthalein test, according to him, will practically always tally with the kidney changes. As a demonstration of this fact, I shall cite a case of a woman who was sent to the University Hospital by Dr. Fussell in June, 1913.

REPORT OF CASE

The patient had been ill for four months with a mass in the left kidney region, and one month previous to admission she developed a similar mass on the right side. She walked into the hospital and a phenolsulphonephthalein test performed on admission showed no excretion in two hours. The blood examination was negative; the urine had a specific gravity of 1.011 and contained a trace of albumin; otherwise it was negative. In view of these findings, the phenolsulphonephthalein test was repeated with the same result, although the woman was apparently in no dangerous condition. The woman died in uremic coma about two weeks after admission, having had an attack of hematuria a few days before death. The highest blood-pressure reading was 160 mm. Hg systolic, which was two days before death. The diagnosis was not definitely settled, as no necropsy was permitted, but it lay between congenital polycystic kidneys and hypernephromas of the kidneys. This case, I think, demonstrates clearly the superiority of the phenolsulphonephthalein test over the usual laboratory test for kidney function.

Contrary to Geraghty's opinion, several cases of severely damaged kidneys with a phenolsulphonephthalein output greater than normal have been reported, such as those reported by Pepper and Austin[1] within the last year. Phenolsulphonephthalein is recognized as the standard test, however, and has been used as such in the cases which form the basis of this report.

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* Read before the Philadelphia Pathological Society, Jan. 22, 1914.

1. Pepper, O. H. P., and Austin, J. H.: Some Interesting Results with Phenolsulphonephthalein Tests, Am. Jour. Med. Sc., 1913, cxlv, No. 2, p. 254.

At the suggestion of Dr. F. E. Keene the phenolsulphonephthalein test was applied to about twenty patients on admission to the gynecologic ward at the University Hospital. These patients were selected without preference. All had been sent in for operation and consequently had been supposed to be good surgical risks by their respective attending physicians. It was decided to note the amount of elimination of phenolsulphonephthalein before operation, the duration of anesthesia, the character of the operation, the position of the patient while on the table and again the amount of elimination of the drug approximately twenty-four hours after operation. The patients all received the routine preliminary preparations, which consisted merely of a purgative the night before operation, there being no reduction in the amount of food or drink until the morning of operation. Each of those who had abdominal operations received an enema of 2,000 c.c. of sterile water on the table at the completion of the operation and a hypodermic injection of ¼ grain morphin sulphate and 1/150 grain atropin sulphate soon after operation. In two patients the tests were never completed; one, who had a cholecystostomy, being too sick after operation to be disturbed, while the other who had a phenolsulphonephthalein excretion of 30 per cent. on admission, died the following day, not having been operated on. Necropsy showed a large hydronephrosis of the right kidney caused by a calculus occluding the renal duct.

The amount of phenolsulphonephthalein excretion before operation varied from 20 to 90 per cent., while the excretion after operation varied from 25 to 80 per cent. The average duration of anesthesia was about one hour, and the operations were for the most part pelvic and plastic, although there were two kidney cases and one case of intestinal resection. There were four positions used on the operating-table, namely, dorsal, lithotomy, Trendelenburg and the lateral posture for kidney cases.

The examinations showed that four patients excreted the same amount of phenolsulphonephthalein after operation as before; two of these had albumin and casts in the urine before operation. Eight patients showed a decrease after operation, this decrease amounting to 15 per cent. or less in every case but one. This patient had a cloud of albumin and granular casts in the urine before operation, but was excreting 90 per cent. of phenolsulphonephthalein; after operation, however, the excretion dropped to 25 per cent., although the patient merely had a plastic operation and showed no symptoms of any renal disturbance afterward. A case in which nephrectomy was performed for renal calculi showed a decrease of only 5 per cent. In this case the indigocarmin test also was performed before operation and showed that the diseased kidney was entirely functionless while the opposite kidney began to excrete the dye in twenty-six minutes, thus showing that the length of the delay in the excretion of indigocarmin does not always indicate the amount of decrease in the function of the kidney. The remaining six cases showed an increase in the excretion after operation; in two cases the increase amounting to 30 and 45 per cent., respectively, the latter case only showing 20 per cent. before operation.

Although ether has long been known as a renal irritant, and kidney irritation following its use, as evidenced by the appearance of casts in a previously normal urine, is a common observation, nevertheless there has been absolutely no relation between the length of anesthesia and the diminution in the excretory power of the kidneys in these cases—assuming, of course, that phenolsulphonephthalein is a reliable guide.

Bovée[2] states that chloroform and ether and also the Trendelenburg posture have little effect on the production of albumin and casts in the urine, although these agents all decrease the rate of urinary excretion and the amount of urea, but that in any event the quantity and quality of the urine is practically always normal at the end of twenty-four hours after operation. In this series the quantity of the urine and the amount of urea were not observed, but the position of the patient on the table, the character of the operation and the administration or omission of proctoclysis likewise gave no evidence of having any special effect on the kidney function. Although many of the patients had traces of albumin and even hyaline or light granular casts in the urine before operation, there was no greater diminution of excretion in these cases than in those with normal urine, and in some there was an increase after operation. The only patient who showed a marked decrease after operation was also the only one who had a cloud of albumin with casts in the urine before operation.

It is noteworthy that in all the cases which showed a diminution after operation, the diminution was most marked in the first hour, the excretion during the second hour usually increasing after operation, which seems to indicate that the damage to the kidneys is slight if anything.

TENTATIVE CONCLUSIONS

Although this series is entirely too small to serve as a basis for any definite conclusions, nevertheless, as far as it has gone it seems to indicate the following:

1. The effect of ether anesthesia on healthy kidneys is practically *nil* so far as reducing the excretory power of these organs is concerned.

2. Traces of albumin in the urine before operation should not give much concern, but clouds of albumin accompanied by casts should be considered seriously before the performance of elective operations.

3. The duration of anesthesia in any given case does not in itself signify the amount of injury which the kidneys will sustain.

4. The position of the patient on the table, the character of the operation and the administration of proctoclysis have not shown any effect of the percentage of phenolsulphonephthalein excretion after as compared with that before operation.

5. In one-third of the cases there is an increased excretion after operation.

I wish to express my indebtedness to Dr. John G. Clark and Dr. Floyd E. Keene for the privilege of reporting these observations.

1503 Girard Avenue.

2. Bovée, J. W.: Renal Excretion during the Administration of Chloroform and Ether in Gynecological Surgical Operations, Tr. Am. Gyn. Soc., 1909, xxxiv, 270. The Influence of the Trendelenburg Position on Quantity of Urine Excreted during Anesthesia, Tr. Am. Gyn. Soc., 1910, xxxv, 443.

Public Instruction in Temperance.—Drunkenness cannot be eliminated or materially reduced unless the public demands such reduction. The public obviously will not force the prevention of drunkenness until convinced of the harm caused by intemperance. It is of greatest importance, therefore, that the public should be continuously informed of the evil effects caused by the abuse of alcohol and of the cost of drunkenness to the state.—Report of Commission to Investigate Drunkenness in Massachusetts.

FORM OF THE ELECTROCARDIOGRAM

DIAGNOSTIC SIGNIFICANCE OF ITS VARIATIONS *

HAROLD E. B. PARDEE, M.D.
NEW YORK

An attempt will be made to explain in an easily understandable manner a few basic facts about electrocardiographic records and their interpretation. I shall first discuss why and how an electric current is obtained from the heart, and then consider in detail the records obtained in normal and pathologic conditions.

When any muscle contracts it produces electricity. The potential is produced at the area which is entering into contraction, all quiescent parts of the muscle being electronegative, so that a current tends to flow toward every quiescent muscle area. This is called the *action current*. If a wire be placed with one end on a contracting part of the muscle and the other on a part which has not yet begun to contract or which has finished its contraction, a circuit will be completed and current will flow through the wire from the quiescent part back toward the contracting part of the muscle. The conditions are quite similar to those of an electric battery. Within the battery the flow is from *zinc to carbon*, but through the wires outside the flow is from *carbon to zinc*.

The contractions of the heart, like any other muscle, are accompanied by electric effects, but owing to the heart's complex muscle structure the current is also complex. Each normal cardiac contraction is considered to originate in the sinus node which lies in the part of the right auricle between the superior and the inferior venae cavae. The contraction spreads over the auricles in a wave-like manner and there is produced on the auriculoventricular node of Tawara some effect which results in the passage of an impulse, possibly also a contraction, along the bundle of His and its branches. The terminal branches of this bundle lie about the bases of the papillary muscles of each ventricle, and the impulse, reaching the bundle terminals in both ventricles at about the same time, causes the muscle of each chamber to contract synchronously.

The body-tissues form an excellent electric conductor, so that the heart's current may be obtained by attaching electrodes to any two of the limbs. A small German-silver plate may be bound about the limb by bandages soaked in strong salt solution, or the patient may be seated in a chair with the hands and feet immersed in a jar of strong salt solution containing a porous cup of zinc sulphate solution. The wires are connected to the silver plate or to a zinc bar immersed in the zinc sulphate solution. The current thus obtained is recorded by a galvanometer, the most satisfactory type of which is the string galvanometer of Einthoven. The principle of this instrument is that when a current is passed through a delicate fiber of platinum or silver-plated quartz which is suspended between the poles of a powerful magnet, the fiber is bent a varying distance to one side or the other according to the intensity and direction of the current. The movements of the fiber are photographed on a moving film or plate.

To obtain the heart's action current clinically, it has become customary to use but three of the various possible combinations of the extremities. These are right arm and left arm, right arm and leg, and left arm and leg, and although the two legs are so situated in relation to the heart as to be practically equivalent, the left leg is always used. These combinations are called leads: Lead I, Lead II and Lead III, respectively, and are seen to be transverse, oblique and left lateral in relation to the trunk.[1]

These three extremities form a triangle with the apex directed downward and the heart at its approximate center. Figure 1 represents this fact, and the triangle may be considered as represented, to be equilateral and to have the central point of the heart as its actual center. In each lead one extremity lies nearer to the base of the heart, the other to the apex. In Lead I the right arm is basal, the left arm apical. In Lead III the left arm is basal and the leg is apical, etc.

When the extremities are connected to the galvanometer, the basal and apical extremities of each lead are always connected to corresponding poles, and a *current flowing through the instrument from an apical toward a basal extremity* will always produce an *upward movement in the line of record*. The reverse of this is also true: a *current flowing from a basal toward an apical extremity* will always produce a *downward movement*.

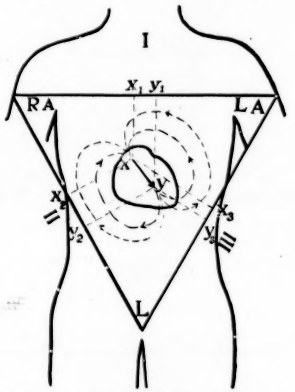

Fig. 1.—*R A*, right arm; *L A*, left arm; *L*, left leg. The Roman numerals outside of the triangle designate the number of the lead to which the respective sides correspond.

The instrument should be *standardized before each lead is taken* so that we can regard equal excursions in different records as being produced by equal currents. The usual standard is that a potential difference of 1 millivolt in the circuit containing the patient and the galvanometer string shall cause a movement of 1 cm. in the record.

Figure 2 is a quite typical record obtained by this technic. It shows in each lead repetitions of a group of movements of practically constant form separated by a level line, the abscissa or zero level of the record. Each group represents one heart cycle and consists of three upwardly directed and two downwardly directed waves or peaks. These were designated by Einthoven by the

* Read before the Section on Medicine of the New York Academy of Medicine, Jan. 20, 1914.

† From the Department of Physiology, College of Physicians and Surgeons, Columbia University.

1. For the construction of the galvanometer and technic of obtaining records: See Einthoven: Le telecardiogram, Arch. internat. physiol., 1906, iv, 132. James and Williams: The Electrocardiograph in Clinical Medicine, Am. Jour. Med. Sc., 1910, cxl, 408.

neutral letters P, Q, R, S, T, a nomenclature now almost universally used. If it is desired to speak of a wave in a certain lead the Roman numeral of the lead is affixed, as RI, RII, RIII, etc.

It is quite evident on looking over a series of records from different normal persons that there is no one form which can be called the normal electrocardiogram. Each peak is subject to variations within certain limits, and the resulting permutations are so numerous that though records from the same person at different times are practically identical, no two records from different persons are exactly alike. There are quite definite limits to the normal variations of the waves, and these will be outlined.

THE NORMAL WAVES

The first wave, called P, is known to be due to the action of the auricle. It is a small rounded or blunt-pointed elevation, varying in height from 1.5 to 2 mm., usually directed upward in all three leads, and highest in Lead II. Rarely its descending limb sinks below the zero level. In some cases which cannot be considered abnormal PIII is downwardly directed, in which case PI is larger than PII.

During the interval between P and the next movement of the record, the impulse from the auricles is passing along the auriculoventricular conduction system toward the ventricles, but has not yet caused them to contract. Since the record is practically stationary at zero during this time we conclude that this impulse is not accompanied by an electric effect of any magnitude. This interval varies from 0.12 to 0.18 second, but probably nothing under 0.20 second should be considered as evidence of impaired function of the conducting system; that is, a tendency to heart-block.

The record of the ventricular contraction is ushered in by a series of three very brief waves: first, a downward one called Q, then an upward one, R, and another downward one, S. This of course denotes a rapid changing of the direction of the currents which occur at the beginning of the ventricular systole.

The wave Q, at times entirely lacking, is usually small, not over 2 mm. in height, and is regularly directed sharply downward in all three leads. Its ascending limb passes directly into the ascending limb of R, which is the highest and clinically the most important wave of the group. With normal hearts, R is directed sharply upward in all three leads. It may be quite small in Lead I or Lead III, but Lead III is usually higher than Lead I. Lead II always registers the highest value, varying from 10 to 20 mm. S is directed downward in all three leads, and begins in the descending limb of R. It is a sharp peak, usually larger than Q, and varies up to 5 or 6 mm. It also may be entirely absent, though more rarely so than Q.

The detailed explanation of these waves need not be discussed here. It must be remarked, however, that R does not mean that the potential which produced Q has ceased, but merely that potential in another direction has greatly predominated so as to change the direction of the flow of current. It will suffice to say that Q, R and S together represent the initial electric currents of the ventricular systole. They occupy the time during which the contraction wave, starting from the terminal branches of the bundle of His about the bases of the papillary muscles, is spreading throughout the complex muscle bundles of the ventricles, affecting successively larger masses in different parts of the heart. The R wave denotes the direction of the predominant current of this period of the heart cycle, and is the only one of the three which is as yet of any clinical interest. How early these currents occur is shown by the fact that Q is completed and R has almost reached its apex before sufficient muscle is affected to produce the beginning of the first heart-sound.[2]

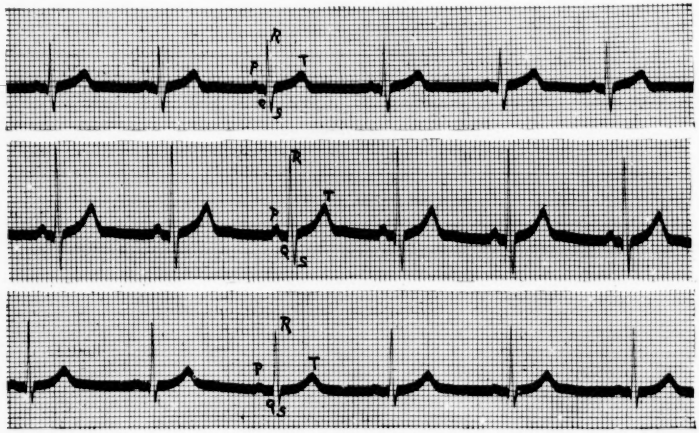

Fig. 2.—Electrocardiogram from a normal person, a member of the Columbia University cross-country team. In this and in all succeeding records one division of abscissae represents 0.04 second and of ordinates 0.0001 volt. In the originals these divisions are actual millimeters.

At the end of S the contraction has spread so as to involve the whole of the ventricular muscle, and at this point the various potentials approximately neutralize each other. The galvanometer string, finding little or no current coming to it, remains undeflected. After a time the potential in the right ventricular or basal region begins to predominate and a flow of current toward the opposite part of the heart ensues. This current, gradually increasing, produces the characteristic slow rise of the T wave. It may be due to a decrease of the potential produced in the apical or left ventricular region because of a beginning relaxation of the muscle there, but on this point there is no agreement.

2. Fahr: Simultaneous Records of Heart-Sounds and Electrocardiogram, Heart, 1913, iv, 147.

The T wave is usually from 3 to 5 mm. high in one of the leads, and is usually directed upward in all three, though smallest in Lead III. In this lead it is sometimes directed downward in cases which are undoubtedly normal. The T wave returns to the base line more sharply than it left it, and the cause of this is the sudden relaxation of the ventricular fibers at the end of systole. The second heart sound[2] and the fall of intraventricular

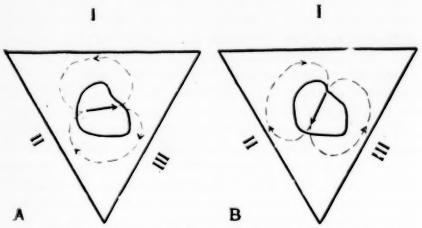

Fig. 3.—The triangle and heart of Figure 1 are readily recognized.

pressure[3] come directly at the end of T. The line of the record is now again at zero, but this time because of the absence of any current within the heart, in direct contrast to the period at the end of S, when a similar result was due to a balance of opposing potentials.[4]

Before considering records from abnormal cases we must understand certain facts in connection with the normal record. Let us see what relation the direction and size of the waves bears to the direction and amount of the current within the heart. Why is the direction of some waves upward and of others downward? Why are corresponding waves of different heights in different leads?[5]

DIRECTION OF A WAVE

The direction of a wave in a given lead depends on the direction of the flow of current within the heart at that instant, for it is this current in the heart which, spreading out through the tissues, is led off from the extremities to the galvanometer. Suppose a current within the heart flowing in the direction of the arrow *x-y* in Figure 1. It would spread out through the tissues as shown by the dotted curved arrows. This current in the tissues is led off to the galvanometer from the extremities, and is seen to flow in each lead from the apical toward the basal extremity, therefore causing an upward deflection in each lead. If the heart's current should flow in an exactly opposite direction, the current in the tissues would be reversed, and, since the current through the galvanometer would flow toward the apical extremity in each lead, the movement in the record would be downward in each lead.

A current flowing at right angles to the line of a lead would flow equally toward each extremity of that lead so that there would be no flow through the galvanometer and no deflection in that lead. The other leads would of course show a deflection.

Certain directions of current will produce deflections in opposite directions in different leads. Suppose a current flowing as represented by the arrow in Figure 3*A*. Here the current in the tissues, as the dotted arrows indicate, would flow toward the basal extremity in Leads I and II, but toward the apical extremity in Lead III. Leads I and II would therefore show an upward deflection, Lead III a downward deflection. A current in the direction of the arrow in Figure 3*B* would be associated with a flow through the galvanometer toward the apical extremity in Lead I, but toward the basal extremity in Leads II and III. Lead I is therefore downward, Leads II and III upward. If the direction in Figure 3*A* were reversed, Leads I and II would be downward, Lead III upward. The result of a current contrary to that in Figure 3*B* would be upward in Lead I and downward in Leads II and III.

SIZE OF THE DEFLECTION

The size of the deflection is dependent on the amount of current produced within the heart. This actual current is modified in each lead by the relation of the direction of the flow within the heart to the direction of the line of the lead. The variation in the leads can be plainly seen in Figure 2, in which the heights of corresponding peaks in the three leads, though dependent on the same current within the heart, are yet quite different.

This is explained by the diagram in Figure 1. The current whose direction is that of *x-y* is represented quantitatively by the length of this arrow. The amount of current recorded in each lead may be measured by projecting the arrow vertically on the line of the direction of the lead. The recorded value along Lead I will

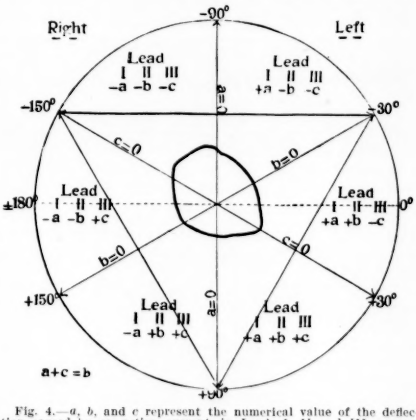

Fig. 4.—*a*, *b*, and *c* represent the numerical value of the deflection caused by an action current, in Leads I, II and III, respectively; $b = a + c$ and will be directed upward or downward according as the larger of *a* and *c* is directed; + before the letter signifies an upward deflection; — signifies a downward deflection.

be that of y_1-x_1, the value along Lead II will be y_2-x_2, the value along Lead III will be y_3-x_3. It is seen that the percentage of the value of *x-y* which could be recorded in any one lead would increase to a maximum as the direction of the heart's current became parallel to the line of that lead, and decrease to zero as the direction became perpendicular to the lead. In one of

3. Kahn: Beiträge zur Kenntniss des Elektrokardiogrames, Arch. f. d. ges. Physiol., 1909, cxxvi, 197.

4. A small prolonged rise in the base line during early diastole, called U, will not be discussed, as its origin is obscure and its clinical significance unknown.

5. For a detailed discussion of the relation of the current in the heart to the current obtained in the leads, see: Einthoven: The Human Electrocardiogram, Lancet, London, 1912, i, 853. Einthoven, Fahr and de Waart: Ueber die Richtung und die manifeste Grösse der Potentialschwankungen, etc., Arch. f. d. ges. Physiol., 1913, cl, 275.

the leads, however, no matter what the current's direction, there would be recorded at least 87 per cent. of the maximum value. For clinical purposes it is scarcely necessary to ascertain this maximum exactly, but the relation of the values in the three leads is of considerable importance in ascertaining the direction of the current within the heart, as will be explained more fully later.

These facts are capable of mathematical demonstration. They have been most clearly and ably brought forward quite lately by Einthoven and have as a corollary another most important fact:

Value in Lead I + value in Lead III = value in Lead II, when the values are expressed in millimeters of height or, with the usual standardization, in tenths of a millivolt. This also can be proved mathematically and is very useful at times in determining which peak in a given lead corresponds with peaks in the other two which are evidently analogous.[6]

Figure 4 is a diagram to enable us to find the direction within the body of the current causing a certain deflection from its relative direction and size in the three leads.[7]

Fig. 5.—Auricular fibrillation: from a patient with chronic interstitial nephritis, arteriosclerosis, chronic myocarditis and hypertrophy of the left side of the heart.

Within the auricles or ventricles an action current may conceivably flow at any instant in any direction whatsoever. Einthoven points out that the usual leads obtain only those currents which flow in the plane of the three leading-off points, a plane with vertically and laterally directed axes. Any current flowing in a plane at an angle to this is represented in the plane of the leads by projection on it, just as the current is represented in each lead by its projection on the line of the direction of that lead (Fig. 1). If the heart be projected on this plane of the leads, then the direction of any current may be represented by that of a line which will radiate from the central point of the heart. There are accordingly 360 degrees of possible variation, as represented in Figure 4. Let us divide the circle by a horizontal line calling the 180 degrees above the horizontal negative, those below it positive. Zero (0°) lies to the patient's left and 180° to the patient's right, so that + 30° lies to the left and downward, — 150° to the right and upward. It is seen that these figures express the degrees of deviation from the horizontal to the patient's left. This deviation is called by Einthoven the angle *a*.

This circle divides itself into six sectors of 60 degrees each. The sector between + 30° and + 90° may be called the normal sector. Currents whose angle lies within this sector give upward deflections in all three leads. Currents in the first sector to the patient's left, that between + 30° and — 30°, will give an upward deflection in Leads I and II, but downward in Lead III. The current of Figure 3*A* lies within this sector. In the first sector to the right of the normal, where we find the current of Figure 3*B*, the deflections are downward in Lead I, and upward in Leads II and III.

In the second sectors to the left and right, Lead II shows a downward deflection as well as the lead which was downward in the first sector.

In the third sector to the left or right, that is the sector opposite to the normal, we find all the deflections downward.

At the border of each sector, the lead which is changing from an upward to a downward deflection will show no deflection at all — its value will be zero — for at this point the direction of the current will be perpendicular to the line of the lead. On account of the formula Lead I + Lead III = Lead II, the values in the other leads will be found to be equal at this angle, though the waves may be oppositely directed. As the angle varies to one side or the other of this perpendicular, the deflection will vary from the zero the more the angle varies, and will be upward or downward, depending on whether it is led off from apical toward basal extremity or vice versa.

If the angle lies at the center of a sector, the direction of the current will be parallel to that of one of the leads. In this lead we shall find the maximum value of that current which could be recorded, and according to the formula, the values in the other two leads will be found to be equal, and exactly half of the maximum, though here again they may have opposite signs.

The waves P, R and T of the normal electrocardiogram must be caused by currents having a direction between + 30° and + 90°, since their deflections are upward in the three leads. Q and S must have an angle between — 90° and — 150°, since their deflections are all downward. If the angle of these currents approaches the border of the sector, the size of the deflection in Lead I or Lead III will be small, and, as has been noted, PIII and TIII may even be directed downward, showing that their angle may lie above + 30°.

6. It is sometimes difficult to apply this rule owing to the fact that the apex of a wave does not always occur in all three leads at the same identical phase or instant of the heart's contraction. If this difference is marked it may make the application of the formula impossible with a quickly changing current as in the Q, R, and S waves, unless we ascertain some fixed point in the cardiac cycle from which to measure like intervals of time in the different leads. This could be done by taking a simultaneous record of the heart-sounds.

7. Einthoven has discussed the mathematics of this very fully and has published in Archiv für die gesammte Physiologie des Menschen und der Thiere, 1913, cl, 275, tables for determining from exact measurements of a given wave the exact angle of the current producing it. If Figure 4 is borne in mind it will suffice for all ordinary clinical uses.

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ABNORMAL VARIATIONS IN FORM

Let us now consider the variations in the form of the waves to which we have been able to attach a certain significance. These variations are due to changes in the mass, in the structure or in the function of the heart-muscle, and the information which they afford can be obtained in no way so surely as by electrocardiographic records.

Nothing will be said of the identification of cardiac arhythmia, except in so far as it is accompanied by changes in the form of the waves of the electrocardiogram. This field has been most ably covered by others.[8] The electrocardiograph makes exceedingly easy the diagnosis of auricular and ventricular extrasystoles, of the tachycardias, of auricular fibrillation and of sinus irregularities, since the waves produced by the auricles and by the ventricles have a characteristic and easily recognized form which greatly facilitates their timing.

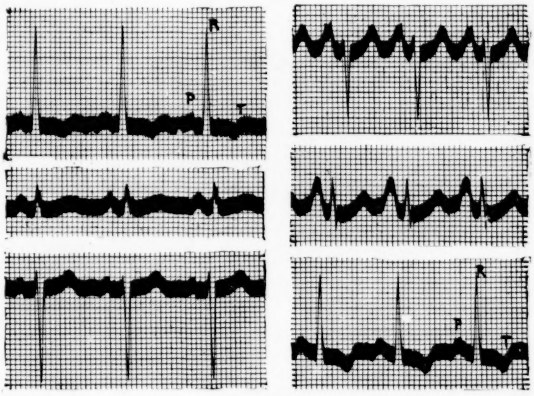
Increase in the maximum value of the P wave is considered to indicate auricular hypertrophy, and necropsy records have confirmed this with much consistency. When the angle of P is normal as in Figure 6*B*, this increase is best seen in Lead II. There has been no adequate explanation of the small notches which at times occur in this wave, more frequently perhaps in the cases of mitral stenosis, but the P wave may take on a quite irregular form when the contraction starts within the auricle at a place other than the normal point of origin. It does this in the case of premature auricular contractions. Its anomalous origin and passage throughout the auricular muscle results in an anomalous direction and succession of the electric currents so that the P wave may be smaller or larger than usual, may have two peaks in the same or opposite directions, etc. Should a premature contraction start in the sinus node, the form of the P wave would be the usual one for that person, since the contraction, starting in the usual place, will spread in the usual direction and be accompanied by the usual electric currents.[7]

In auricular fibrillation the P wave is absent, as seen in Figure 5, but there is found in all three leads, usually best in Lead III, a series of rapid undulations of the line of the record. The form of a single undulation suggests the P wave at times, but the amplitude and rate are continually varying. The currents producing these movements are considered to arise from the muscle bundles of the auricle contracting incoordinately.

The Q, R and S waves, though multifarious in their normal variations in form, are usually completed within from 0.08 to 0.09 second. At times this group occupies even 0.16 second, and these cases are those showing myocardial impairment. It may be supposed that conduction is delayed within the heart muscle so that the contraction wave spreads more slowly through the ventricular mass, taking a greater time to involve the whole of it.

The R wave is subject to marked variations in pathologic cases. Possibly the most common one, seen in Figure 6*A*, is a downward direction in Lead III, associated with a wave of greater amplitude in Lead I than in Lead II. This direction of the three leads has been shown to be due to a current within the heart whose angle is between $+30°$ and $-30°$. Such a direction of the R wave is associated with hypertrophy of the left ventricle.

Since the ventricular contraction begins in or about the papillary muscles, and therefore at about the center of the heart, the predominant current at this time, that producing the R wave, may flow normally in a direction between $+30°$ and $+90°$, because in that direction from the papillary muscles there is a greater mass of fibers not yet contracting, and therefore electronegative to the contracting fibers. This direction is represented in Figure 1 by the arrow *x-y*, and because its angle lies between $+30°$ and $+90°$, the R wave is normally directed upward in all three leads. When the left ventricle increases in mass by hypertrophy, there is a change in the relation of the greatest muscle mass to the fibers at the center which start the contraction. This may deflect the current toward the increased mass, and may be the reason that the angle of R is rotated to the left and upward as shown by the arrow in Figure 3*A*. The angle of R here lies above $+30°$, and RIII is downwardly directed.



A B

Fig. 6.—*A*, from a patient with chronic interstitial nephritis and hypertrophy of the left side of the heart. *B*, from a patient with mitral stenosis and insufficiency and hypertrophy of the right side of the heart.

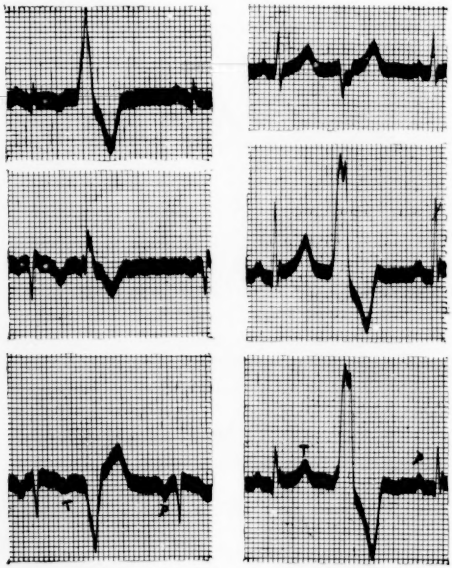
Hypertrophy of the right ventricle may in a similar way affect the direction of the current of the R wave, leading to the change which is seen in Figure 6*B*. The increase in mass here lies to the right, so that the current would be deflected to the right as shown by the arrow in Figure 3*B*. The angle of R would lie to the right of $+90°$, so that RI would be directed downward. If both right and left ventricles are hypertrophied, the electrical curve would be expected to take the form corresponding to the hypertrophy which is predominant, and it is found to do so. Very markedly predominant left hypertrophy may result in the angle of R lying between $-30°$ and $-90°$, so that RI will be directed upward and RII and RIII downward, but I have never seen an angle to the right of $+150°$ caused by hyper-

8. Lewis: Mechanism of the Heart-Beat, London, 1911. James and Williams: See Footnote 1.

trophy of the right ventricle except in hearts with a congenital lesion.

The amount of the current producing the R wave seems to bear some relation to the strength of the ventricular contraction, so that in weakly contracting dilated hearts the maximum value of R is small, while it is large in hearts contracting strongly. When the heart is dilated, the angle of the R wave is unchanged, for here the muscle masses are not changed in their relative disposition.

The T wave is found to have a small maximum value in hearts with myocardial disease, showing that in these cases the current producing it is for some reason small. We cannot at present say what is the cause of variations in the angle of the current causing the T wave, but this wave is not found directed downward in Lead I or Lead II in records from normal hearts.



A B

Fig. 7.—*A*, premature ventricular contractions originating in the right ventricle; the complexes of the normal contractions are of normal form; from a patient complaining of frequent attacks of palpitation but with no valvular lesion. *B*, premature ventricular contractions originating in the left ventricle; the complexes of the normal contractions indicate left hypertrophy; this case was clinically similar to that in Figure 7 *A*; cardiac dulness, though, was enlarged to the left.

The factors already mentioned affect in various ways the individual peaks of the electrocardiogram, but there are others which may change the ventricular complex as a whole. A most striking change is brought about by the premature contraction of the ventricles, as shown in Figure 7. In this case the ventricular contraction is not caused by the usual impulse along both branches of the bundle of His, but starts in some small part of the ventricular muscle and spreads from there throughout the whole mass. Its origin is ectopic, a term which we owe in this usage to Lewis. Whether the impulse originates in the ventricular muscle itself or in some of the terminal arborizations of the bundle of His cannot be determined, but the result in each case is similar in that the contraction results from an impulse affecting only a small area of muscle in one chamber instead of a large area in each chamber. The resultant flow of current is quite different from that during a normal ventricular contraction, and is quite characteristic. The record shows two large movements in opposite directions from the zero level, the first being usually the larger and having a unique form, the second bearing a general resemblance to a T wave. The first limb of these complexes is of greater excursion than the R wave of the individual, possibly because the action current producing it, not starting simultaneously in the two ventricles, is not neutralized to any great extent by potentials in an opposing direction. This deflection, moreover, remains away from the base line for a longer time than the combined duration of Q, R and S. When it finally does reach the base line, the second limb of the complex follows, and this is usually in a direction opposite to the first. The second limb is larger than the T wave of the individual, and the reason is possibly analogous to that producing the great height of the first limb.

It is maintained that by analogy with animal experimentation we can refer these complexes to the region of the heart in which they originate.[9] A complex as in Figure 7 *A*, showing the first limb directed upward in Lead III, is considered to originate in the right ventricle, while one like that in Figure 7 *B* with the first limb downward in Lead III is considered to originate in the left ventricle. A study of the direction and succession of the currents producing these deflections should lead, it would seem, to a much more exact localization of the point of origin of the contraction.

At times the ventricular complex following a premature auricular contraction will vary considerably from the normal for that individual. These variant types have been termed aberrant by Lewis, and are considered by him as possibly the result of an unequal rate of conduction in the right and left branches of the bundle of His, so that the impulse reaches one ventricle at a later time than the other.[10] The type showing an increased height of the R wave in Leads II and III with perhaps a decrease in size or an inversion of T is what we might expect, by analogy with the complex of the premature ventricular beat, should the impulse reach the right ventricle slightly before the left. The type showing a decreased amplitude of RII and RIII with an increase of SII and SIII, and of TII and TIII, might similarly result from the impulse reaching the left ventricle earlier. Similar complexes are found to occur in records from auricular fibrillation.

Should the impulse to one ventricle be entirely blocked, as by a lesion in one of the main branches of the bundle of His, the ventricular complex takes on a form like that of an ectopic ventricular beat depending for the direction of its limbs on the ventricle to which the impulse from the auricle is conducted.[11]

There is one more factor which can lead to a change in the waves of the electrocardiogram. It changes the direction of the heart's current within the body, but not the direction of the current within the heart itself. Anything displacing the heart upward or downward

9. Kahn: Ueber das Elektrokardiogram künstlich ausgelöster Herzkammerschläge, Zentralbl. f. Physiol., 1909, xxiii, 444. Lewis: Mechanism of the Heart-Beat, London, 1911.
10. Lewis: Heart, 1910, ii, 35.
11. Eppinger and Rothberger: Ueber die Folgen der Durchschneidung der Tawaraschen Schenkel, Ztschr. f. klin. Med., 1910, xlv, 1.

cannot carry the basal region with it, because this is relatively fixed by the attachment of the great vessels. The heart is rotated on the base as a fixed point, causing a rotation of the angle of the various peaks, which must be taken into consideration when confirming or denying a diagnosis of hypertrophy. The angle of each of the peaks deviates with the hands of a clock on descent of the apex, but in a counter-clockwise direction on ascent of the apex, so that abdominal distention by gas or fluid may by forcing the diaphragm upward produce a fictitious angle for the R wave which might be high enough on the left to be said to be the result of left hypertrophy. The respiratory movements of the diaphragm show this change of the angle by a rhythmic waxing and waning of the waves, which is best seen in the normal electrocardiogram in Lead III. In Lead III, Figure 2, the waves grow smaller with expiration and larger with inspiration. Ascent of the diaphragm makes the current more perpendicular to Lead III, so that the waves grow smaller; descent of the diaphragm makes the current more nearly parallel to this lead, so that the waves are larger. This is true whenever the angle of the current lies between + 30° and + 120°. In Lead I of Figure 2 the waves have the opposite behavior to this, because ascent of the diaphragm makes their current more nearly parallel to this lead, and descent makes it more perpendicular. This is true when the angle of the current lies between + 90° and 0°. In Figure 2 the R wave has an angle of 65°, and at this angle the respiratory variations in Lead II are the same as in Lead I.

When the heart is displaced laterally, as by gas or fluid in the pleura, by tumors or by fibrosis of the lungs, the base moves with the apex, the heart is not rotated, and the angle of the waves is unchanged unless the level of the diaphragm is also affected. This fact enables us to distinguish between a displaced and a hypertrophied heart. If cardiac dulness extends too far to the left or right, a normally directed R wave would be evidence against the change being due to hypertrophy.

In conclusion, I wish to emphasize the fact that we have in the electrocardiogram a new and valuable method of examining the heart action. The form of the waves can be referred to the direction and the amount of the flow of current within the heart. We have been able to correlate certain variations in the flow of this current with certain abnormalities in the function or the structure of the heart. Certain changes, as pericarditis or endocarditis, will not affect the electrocardiogram until they have existed for a long enough time to affect the function or structure of the heart muscle. Other changes, as hypertrophy, premature contractions and fibrillation, are shown more clearly and exactly by this than by the older methods, and still other changes, those resulting from myocardial disease, are shown exclusively by electrocardiographic records.

The electrocardiograph should be used in all cases in which there is any doubt as to the cardiac diagnosis, and its routine use will undoubtedly lead to an increase in our knowledge of the effect on the heart action of the various abnormal influences which arise in pathologic physiology.

I wish to express my thanks to Prof. F. S. Lee and to Dr. H. B. Williams for their interest and helpful suggestions.

156 East Sixty-First Street.

Suggestion.—The suggestible element is a component of our natures. It never leaves us, is ever with us.—Sidis.

ROENTGEN RAY AS A DIAGNOSTIC MEASURE IN TUBERCULOUS LYMPHADENITIS

GEORGE G. DAVIS, M.D.
Associate Professor of Surgery, The University of the Philippines
MANILA

A clinical method that will be of assistance in a differential diagnosis of chronic enlargements of the cervical lymph-nodes and that, when it gives a positive finding is pathognomonic of the most frequent swelling of the neck, should undoubtedly be of service to clinicians.

The group of swellings of the neck, which in a general term may be classified as "chronic enlargement of the cervical lymph-nodes" and which comprises Hodgkin's disease or pseudoleukemia, lymphatic leukemia, lymphosarcoma, secondary carcinomatous lymph-nodes, syphilis of the cervical lymph-nodes, simple hyperplastic lymph-node inflammation and tuberculosis of the cervical lymph-nodes presents a clinical picture, which on local physical examination might describe any of the various diseases mentioned.

Fig. 1.—Showing cervical enlargement in the posterior, anterior, and submaxillary triangles.

It remains for the clinician to arrive at a final conclusion only by a careful history and a thorough physical examination, by blood examination, especially by differential blood-counts, by serodiagnosis, as tuberculin, which may be of doubtful value, or by Wassermann reaction and by other special laboratory methods such as removal of a piece of tissue for microscopic study, and as I wish to add, by roentgenoscopy.

Even as a diagnosis of cervical swelling secondary either to an intra-oral chancre or to a carcinoma of the breast is cleared up by a careful analysis of subjective symptoms and a routine physical examination; or as the lymphatic leukemias are so accurately diagnosed by a differential blood-count, and as primary new growths either lymphosarcoma or carcinoma are definitely determined by examination of a piece of the tissue under the microscope, so too, tuberculosis of the cervical lymph-nodes often may be definitely diagnosed by the use of the Roentgen ray. To call attention to the use of the Roentgen ray in cervical lymph-node enlargements and to lay stress on its importance as a diagnostic measure, which I think should rank in importance with the other laboratory methods before mentioned, is the object of this paper.

To illustrate this fact I wish to refer to a patient that came under my care at the Presbyterian Hospital, Chicago, while an assistant in Professor Bevan's clinic. I shall briefly consider the history, compare the Roent-

gen-ray pictures with the gross and microscopic pathologic findings and draw conclusions.

REPORT OF CASE

Patient.—A young man aged 16, American by birth, complained of an enlargement on the right side of his neck, which he said was not painful or tender but that his chief complaint

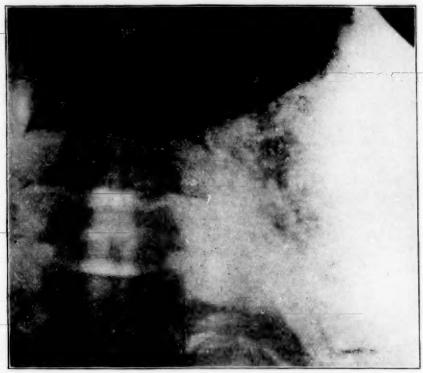


Fig. 2.—Roentgenogram taken in anteroposterior view showing shadow cast by the right-side mass. This and the following roentgenograms were taken by Dr. Hollis E. Potter, Presbyterian Hospital, Chicago.

was the cosmetic effect. He denied having had any venereal diseases and his family history was good. His habits also were good, as he never used tobacco, alcohol, tea or coffee, and his bowels were regular, his appetite was good, and he slept well, but he worked thirteen hours a day.

He did not remember having had any of the diseases of childhood, but had had frequent colds and had suffered from tonsillitis when 13½ years old and later the right tonsil was removed. It was two months after this attack of tonsillitis that the patient first noticed a small hard nodule on the right side of the neck at the angle of the jaw. This gradu-

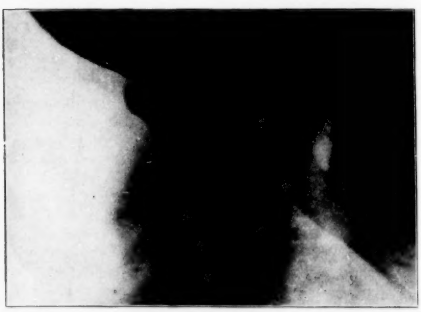


Fig. 3.—Roentgenogram taken in lateral view, showing shadow cast by mass in submaxillary region.

ally grew larger and then others appeared and grew larger but were never painful or tender.

Examination.—The patient was a tall, blue-eyed, narrow-chested young man, whose lungs were resonant throughout and showed normal excursions. His heart was not enlarged but had a slight systolic mitral blow and a slight presystolic murmur, also a small but palpable thrill at apex. The findings on examination of abdomen and extremities were negative and his reflexes were normal. The right side of his neck (Fig. 1) was markedly enlarged especially in the posterior triangle but also considerably in the anterior and submaxillary triangles. The swelling was composed of small nodular masses of variable size but of uniform firm consistency. The nodules were more or less discrete. There was but slight if any lymphadenopathy on the left side of the neck. The urine analysis was negative. The blood examination showed 65 per cent. hemoglobin and 10,600 leukocytes. A differential count was as follows: small mononuclear lymphocytes 52 per cent., large mononuclear 23, indentate nuclear 3, mononuclear neutrophils 1, and polymorphonuclear neutrophils 23 per cent. Roentgenoscopy was done and two views taken; one an anteroposterior and the second a lateral. The anteroposterior view (Fig. 2) showed a shadow which extended from the level of the base of the skull and lateral to the transverse processes of the cervical vertebrae, downward to the level of and along

Fig. 4.—The gross specimen of mass removed from beneath the sternocleidomastoid muscle, which encroached on the anterior and posterior triangles of the neck.

the outer border of the first rib. The shadow was not solid, but mottled in character and varied greatly in density, some places being quite intense, while in others but faintly showing. The mottled or blotchy characteristic is quite noticeable. The lateral view (Fig. 3) shows a similar shadow in the submaxillary region and is especially dense just below the angle of the jaw and extends anteriorly along the lower border of the ramus of the mandible.

Operation.—A diagnosis of tuberculosis of cervical lymphnodes was made and an operation was decided on. An S-shaped incision was made: the upper curve of the S following under the ramus of the mandible and the lower curve sweeping posteriorly at the level of the posterior belly of the omohyoid muscle parallel to the clavicle and the long central portion of the S lying over the sternocleidomastoid muscle. The sternocleidomastoid muscle was divided and the mass of enlarged nodes was dissected out in two pieces. One, the larger (Fig. 4), was dissected from beneath the sterno-

cleidomastoid muscle and occupied the anterior and posterior carotid triangles. The second (Fig. 6), or smaller mass was removed from the submaxillary triangle.

Fig. 5.—Roentgenogram of gross specimen removed from beneath the sternocleidomastoid muscle.

These two masses were again roentgenoscoped before being sectioned for pathologic examination. The larger mass cast a dense mottled or interrupted shadow (Fig. 5), but these shadows were so thickly and intimately intermingled that

Fig. 6.—The gross specimen of mass removed from submaxillary region.

almost the entire specimen is outlined in shadow. The roentgenogram of the smaller mass (Fig. 7) gave a similar picture but was even more intense than the former.

Pathologic Examination.—The gross specimens were then cut in cross section and pieces removed for microscopic examination. In cutting, the knife transmitted a grating, gritty sensation as it passed through the tissue. On cross section there were numerous soft whitish-yellow areas varying in size from that of a split pea to 1 inch in diameter. These areas were very soft and caseous and from them opaque whitish small particles of calcified material could be removed which, when pressed on by the knife, gave a hard gritty crumbling or breaking sensation. On microscopic examination of the tissue a typical picture of tuberculous infiltration of lymphoid tissue with areas of degeneration and calcification was diagnosed. The same was true of the smaller mass.

CONCLUSIONS

What conclusion can we draw from these findings?

1. Roentgenoscopy is valuable in making a differential diagnosis of enlargement of the cervical lymph-nodes.

2. Tuberculosis of the cervical lymph-nodes at times can be definitely diagnosed by the Roentgen ray.

3. The only times that tuberculosis of the lymph-nodes can be definitely diagnosed by the Roentgen ray

Fig. 7.—Roentgenogram of gross specimen of mass removed from submaxillary region.

is when necrotic and caseous changes in the nodes have taken place, as calcification only follows in the wake of such changes, and it is this calcification or calcium salt deposits alone which cause the shadows with the Roentgen ray.

Citrus By-Products.—The problem of utilizing waste oranges and lemons has recently been studied by the U. S. Bureau of Chemistry with interesting results. It is found that lemons which have previously been discarded will yield from 15 to 60 pounds of citric acid per ton, so that at the prevailing market rate of the acid these culls are worth from $5 to $25 a ton. Other promising by-products are the essential oils of orange and lemon, 60 per cent. of which can be recovered by methods recently devised. As much as 6¼ pounds of essential oil have been obtained from a ton of fruit, and it is worth from $2.50 to $5 a pound. The gross maximum income per ton from the best quality of culls would approximate $45. It is understood that a number of companies are considering the manufacture of these by-products.—*Scient. Am.*

AN EXTENSIVE CASE OF PLANTAR WARTS

RICHARD L. SUTTON, M.D.
KANSAS CITY, MO.

The symptomatology of verruca plantaris, a puzzling but comparatively common disease of the skin, was first described by Gorju,[1] of Paris, over half a century ago. More recently the disorder has been carefully studied by Dubreuilh[2], Montgomery[3], Bowen[4] and others, but, despite the publicity given it by these contributors, the true nature of the condition is seldom recognized even to-day.

For this reason the following example, which is one of the most extensive I have seen, may be of general interest:

L. C., single woman aged 20, student, referred to me by Dr. Jabez N. Jackson of this city, was a native of Massachusetts and a resident of Boston. Four years previously she had been troubled with a "soft corn" on the sole of her left foot, and at one time since then a college room-mate had had several growths on the bottoms of her feet similar to those from which the patient sought relief.

Fig. 1.—The epidermal "lid" has been removed at *A*, disclosing a group of five verrucae. The callus-like masses at *B* and *C* both contain typical plantar warts.

Fig. 2.—Group of plantar warts on right foot. The covering has been removed from the one in the middle.

Fig. 3.—Plantar wart from right foot, showing general structure (low magnification).

At first glance the lesions resembled large, oval callosities. The most troublesome one was situated near the inner border of the left heel, and measured 2 by 6 cm. (Fig. 1, *A*). The overlying epidermis was smooth and translucent and a superficial examination revealed no hint of the presence of verrucae. On deep pressure, however, the tumor was found to be exceedingly tender at several different points. Just posterior to the fifth metatarsophalangeal articulation was a similar but somewhat smaller growth (Fig. 1, *C*), which also was very sensitive to pressure, and near the inner side of the ball of the foot was a third (Fig. 1, *B*). The right sole presented a single group of three lesions, arranged in a row, near the base of the great toe (Fig. 2).

The middle and oldest of the three was simply a yellowish, callus-like mass, but the other two were smaller and sharply circumscribed, with slightly elevated borders and brownish, tender centers.

When the outer layers of epidermis covering the lesions was removed by means of salicylic acid plaster, the typical, well-like cavities, partially filled with tough, stringy, opaque masses of transformed epithelium, were exposed. For laboratory study one of the lesions on the right foot and a portion of the large one on the left heel were excised with a sharp cutaneous punch. The histologic characteristics of the growths could best be studied in the specimen from the right foot (Figs. 3 and 4). The larger portion of the tumor consisted of imperfectly keratinized horny material. With the exception of a pronounced degree of papillary hypertrophy in the vicinity of the growth the corium was little changed. The border of the lesion was acanthotic, and many of the cells here and in the center of the area contained vacuoles. Both granular and horny layers were much thickened. The peculiar, small, round, highly refractile, protozoa-like, intercellular bodies which Bowen first described were present in considerable numbers. As he has stated, they probably represent some form of nuclear degeneration or alteration.

Plantar warts are notoriously resistant to treatment. The therapeutic measures usually employed in combating the disease elsewhere on the body often prove ineffectual here, and recurrence occasionally takes place even after excision.

Of all the methods tried, I should place Pusey's carbon dioxid snow first in value, with fulguration second and the Roentgen rays third. Before the snow or the electric current is applied the epidermal "lids" of the little tumors should be removed by means of a 10 per cent. salicylic acid plaster. Roentgenotherapy is particularly applicable in those cases presenting numerous lesions, and often following its use the growths disappear as if by magic.

1. Gorju: Thèse de Paris, 1857.
2. Dubreuilh: Ann. de dermat. et de syph., 1895, p. 441.
3. Montgomery, D. W.: Papilloma of the Sole, THE JOURNAL A. M. A., July 11, 1903, p. 100.
4. Bowen: Boston Med. and Surg. Jour., 1907, p. 781.

In the present instance the patient was exceedingly anxious to get well as quickly as possible, and all three methods were tried, the result being an apparently complete cure at the end of about four weeks.

613-614 Commerce Building.

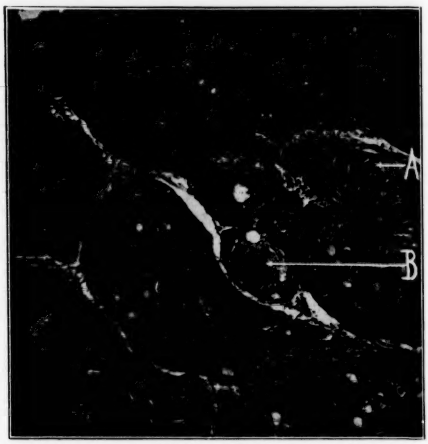


Fig. 4.—Plantar wart, showing epithelial columns, with degenerated cellular changes and "ballooning." Protozoa-like bodies at *A* and *B* (moderate magnification).

CANCER OF THE SPLENIC FLEXURE

P. E. TRUESDALE, M.D.
FALL RIVER, MASS.

The splenic flexure marks an intermediate position in the colon both anatomically and physiologically. The proximal segment, the cecum and the ascending and transverse colon, as observed by Cannon,[1] churn and mix the bowel contents until the moisture is largely removed. Starling[2] has compared this process with the contractions in the pyloric end of the stomach. The dry part of the intestinal mass begins to collect, therefore, at the splenic flexure, where there is frequently a sharp angulation in the colonic tract. This abrupt change in the course of the bowel causes a hindrance to the passage of its contents, resulting in one of the pressure-points in the colon. The predisposing causes of carcinoma, ulceration and chronic irritation exist here, no doubt, as in regions in which cancer is more frequent. A routine examination of this territory when the abdomen is opened reveals the fact that the costocolic ligament, an embryologic structure reduplicating the peritoneum from the omentum, varies considerably in its appearance and density, enough so to convince one that inflammatory changes here are more common than is generally believed. In spite of this, however, cancer at the splenic flexure is relatively rare, developing slowly and metastasizing late.

The lymphatic vessels and glands of this region are so related that the conditions for the spread of carcinoma are not favorable. Madeling[3] reports seven cases of his own and ninety-three from the literature, from which he draws the important conclusion that cancer of the splenic flexure is curable by intestinal resection even in the advanced stages of the disease. Mayo[4] reports seven cases of cancer of the transverse colon, including the hepatic and splenic flexures. There was one operative death. Two patients were alive and well after one year. One was alive and well three years after operation. One could not be traced.

The following two cases of cancer at the splenic flexure presented a somewhat striking difference in the clinical picture:

CASE 1.—M. B., aged 63, housewife, native born (seen in consultation with Dr. George W. Parlow), was admitted to the Highland Hospital Nov. 5, 1912, for intestinal obstruction of three days' duration. For several weeks she had been troubled with unusual sluggishness of the bowels, associated with anorexia, distress after meals and a perceptible loss in weight. Vomiting began three days before admission, and distention of the abdomen steadily increased. Cathartics and enemas had failed. On examination the abdomen was distended but not tense. Deep palpation revealed no tumor. The abdomen was opened by a left rectus incision. The small bowel was considerably distended, the cecum enormously so. The descending colon was collapsed. Well up under the left costal arch was a tumor involving the splenic flexure of the colon. After mobilization of the bowel at the tumor site, a preliminary colostomy was made by bringing the transverse colon through the upper angle of the incision. November 25, a resection of the splenic flexure was done. The transverse and descending colon were freely mobilized. A division of the transverse colon was made adjoining the colostomy opening. The splenic flexure was then resected with a good margin of healthy bowel.

A lateral anastomosis was made after a method described by Bloodgood,[5] wherein the closed end of each segment was sutured outside of the parietal peritoneum in the line of incision, thereby placing extraperitoneally the points of suture in which the danger of leakage is greatest. This safety measure was appreciated during the convalescence of this patient. The pathologic examination of the specimen removed showed it to be adenocarcinoma. December 15, there was a slight discharge of fecal matter from the wound. This gradually cleared up and the patient was discharged in good condition, Jan. 1, 1913. This patient presented herself for examination in February, 1914. During the year following her operation

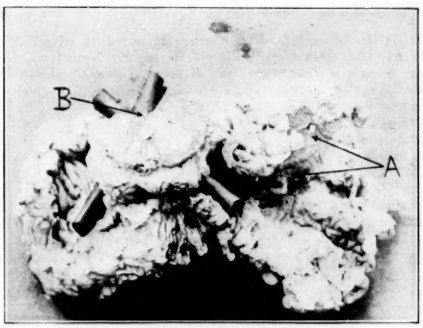


Fig. 1 (Case 1).—Segment of colon removed at operation showing (*A*) annular adenocarcinoma which had occluded the lumen at the splenic flexure, and (*B*) colostomy opening in the transverse colon.

1. Cannon: Am. Jour. Physiol., 1901, vi, 251.
2. Starling: The Physiology of Digestion, p. 146.
3. Madeling: Arch. f. klin. Chir., lxxxi, 1.
4. Mayo: Tr. Am. Surg. Assn., 1909, xxvii, 338.
5. Bloodgood: Tr. Am. Surg. Assn., 1909, xxvii, 340.

she had gained 20 pounds in weight and remained symptomatically well. She complained of a bloody vaginal discharge at irregular intervals during last December and January. Vaginal examination revealed a nodular growth involving the cervix, undoubtedly a carcinoma.

CASE 2.—I. Z., aged 66, retired, born in Poland, with negative family history, had had no previous illness of importance. The chief complaint was anorexia, progressively increasing weakness and loss of weight, 45 pounds in six months. There was no pain and no vomiting, but occasional nausea. The bowels were regular and caused no trouble whatever. Bloody or stringy stools had never been noticed. Physical examination showed a well-developed man who had recently lost much in weight. The tongue was coated; the heart was irregular; a loud, blowing, systolic murmur was heard over the precordia, loudest at the apex and transmitted into the axilla. The abdomen was level, soft and tympanitic, without revealing tenderness or spasm. In the left upper quadrant could be felt a hard, nodular, non-tender, freely movable tumor the size of a tennis-ball. From the location of this tumor it was apparent that either the greater curvature of the stomach or the splenic flexure of the colon was involved.

Several roentgenograms were taken showing the greater curvature of the stomach to be smooth, and a normal pylorus, although there was a slight six-hour residue. In the transverse colon there was a distinct interference with the normal

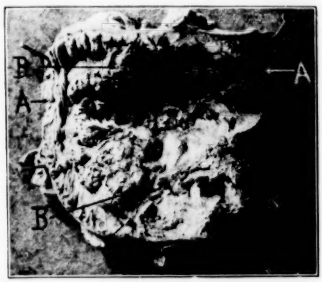


Fig. 2 (Case 2).—Specimen removed at operation showing large cauliflower tumor mass occupying the intestinal wall; *A, A*, normal mucosa; *B, B*, adenocarcinoma.

peristaltic movement. The bismuth appeared to collect in an irregular mass toward the splenic flexure, beyond which was a short segment in which the bismuth showed canalization. On this evidence the diagnosis of cancer of the splenic flexure was made. February 17, after a few days of preparation, the tumor was removed, including several inches of the transverse and descending colon. It was not possible to make an anastomosis of the large intestine; therefore, the ileum was divided at the ileocecal valve and an ileosigmoidostomy was done. The cecum was drawn out through a muscle-splitting incision, at which point it was subsequently opened for drainage. Pathologic examination of the specimen removed showed it to be an adenocarcinoma. The patient recovered and has gained in weight from 170 pounds, his weight on admission, to 220 pounds, his present weight, and is now apparently well.

Since the large intestine has become a source of great interest to the internist, the roentgenologist and the surgeon, cases similar to those just described are worthy of record. The first patient presented that picture of malignant disease of the colon in elderly patients so frequently manifested by acute intestinal obstruction following a prolonged period of obstinate constipation. It is not unusual for such patients to continue at work until nausea and vomiting occur. In August, 1909, I was called by Dr. Briggs of Assonet to operate for acute intestinal obstruction. The patient was a stone-mason, aged 63, and had been at his work as usual on the day of the attack. An annular growth was found involving the sigmoid occluding the lumen of the intestine. On careful inquiry in similar cases one can always elicit a history of intestinal stasis for a variable period before the onset of acute symptoms.

On opening the abdomen of Patient 1, a condition was found which should always contra-indicate immediate resection. The transverse colon was distended with an abundance of solid fecal matter which had been unable to pass the carcinomatous ring. The cecum and ascending colon also contained semisolid masses of feces. Many of the earlier operations of resection were made perilous by the presence of such fecal impactions. In Madeling's list of cases, resection was carried out thirty-four times with fourteen deaths. He now recommends operating in two or three stages. When the proximal colon is filled with fecal matter, colostomy as a preliminary procedure is absolutely essential for success.

The second patient presented a somewhat striking contrast to the first. He was an ambulatory patient, in the advanced stage of cancer and seeking a diagnosis; a picture that is not so rare as it should be. The bowels were regular and he had no pain, but there was very little desire for food and a markedly progressive loss in body-weight. The tumor was palpable and though of considerable size it was found to be surrounded by a wide zone of inflammatory tissue. The colon having been very thoroughly emptied, it was deemed safe to do a resection and make the anastomosis in a single operation. The recovery of this patient would lead one to attempt the removal of very large growths in the splenic flexure. The absence of metastasis in organs adjacent or remote must remain the guide for complete extirpation of the tumor. Enlargement of the pericancerous lymph-nodes, here as elsewhere in the intestinal tube, frequently indicates only inflammatory changes, and is not to be accepted as a contra-indication to radical measures.

The cure of cancer in this region of the bowel by excision can be reasonably assured. Associated surgical principles, though not uniformly settled, are efficient and safe. The fate of one afflicted with cancer here, as in other parts of the body, must at present remain largely if not entirely in the hands of the physician who first hears his complaints.

It is in fortifying this individual or the department of medical practice which he represents that our hope for permanent cures will be realized.

APPENDICITIS FOLLOWING INGESTION OF SHOT FOR "CUBAN ITCH"

FREDERIC WADE HITCHINGS, M.D., AND H. G. SLOAN, M.D.,
CLEVELAND

The case to be reported is of interest on account of the use of shot as a therapeutic agent, the severe lead-poisoning which followed its ingestion, and, particularly, the weight of the patient's appendix and its contents, possibly the greatest ever recorded. While the view is now generally accepted that foreign bodies can pass from the cecum into the appendix, it was formerly thought that this could not occur. That the old idea was erroneous is strikingly shown in this case by both the number and, relative to the lumen of the appendix, the large size of the foreign bodies found therein.

The patient, an unmarried woman, aged 21, was first seen by one of us (H.) at midnight, Jan. 3, 1914. She said that

forty-eight hours previously she had had four teeth extracted under nitrous oxid anesthesia, and had had considerable subsequent hemorrhage. Twenty-four hours after the extraction she had had a chill with vomiting which persisted almost continuously until the patient was first seen. She then complained of rather severe pain all over her abdomen, occasional paroxysms of intense pain, and severe backache. The abdomen was found to be everywhere tender with slight accentuation over the appendix. Pulse 74, temperature 98.9 F.

Previous History.—When questioned the patient asserted that soreness over her right lower abdomen existed before December, 1912. At about that time she was treated by dilatation and curettage for dysmenorrhea, and was told that the right ovary was inflamed. Whether or not appendicitis was present then it is impossible to say. There was no further history of any inflammatory process affecting the uterus, tubes or ovaries, and, aside from the dysmenorrhea, the menstrual history was negative.

Ingestion of Shot.—About Christmas, 1912, in the patient's home town, there were a number of cases of an intensely itching and apparently contagious eruption which the patient said affected about one hundred people, and was called "Cuban itch." The patient said that she contracted it and that the treatment of four different physicians, who told her as many different things as to its nature (it was probably scabies), gave her no relief. A "kind" friend, similarly afflicted, advised her to take a "sure cure" in the form of bird-shot. Accordingly, beginning in March, 1913, the patient took from 15 to 20 small bird-shot every morning until she had taken about half a pound in all. The eruption disappeared, but some time later she began to have symptoms of lead-poisoning as shown by headache, colic, lead line and digestive disturbances. The history is not clear as to whether or not a severe attack of appendicitis and "peritonitis," from which she suffered and during which she was in the hospital for eight weeks, occurred at this time. At all events, in July, 1913, severe and prolonged convulsions, due to the lead-poisoning, almost caused the patient's death. They lasted for a week and recurred at intervals after she left the hospital, the last being in September, 1913. After this she had almost constant attacks of colic, nausea, vomiting, gas in the stomach and intestines, shooting pains in arms and legs, severe constipation and a "dragging" feeling in the right side. As though previous experiments were not sufficiently unpleasant to teach her a lesson, about the middle of November the patient again began to take shot for a new kind of eruption on her face. This time she chose the large shot known to the trade as "BB" size. The dose was five or six every morning until about a tablespoonful had been taken. She asserted that she passed all she took. At 8 a. m., Jan. 4, 1914, the abdominal tenderness had increased, with great soreness over the appendix, enough soreness over the gall-bladder to be very suggestive of cholecystitis, a pulse of 100, and a temperature of 99.3 F. A diagnosis of acute appendicitis with not only a possibility but considerable probability of the presence of shot in the appendix was made, but was attended with a great deal of doubt as to how much part lead colic was playing. In consultation this diagnosis was agreed on, and immediate operation advised.

Operation.—A long median incision was made (S.) through which nothing abnormal could be found except the appendix, which was inflamed, particularly at the tip, and heavy from what later were found to be eight shot. When the appendix was removed a ligature was tied around the proximal end in order to hold the shot in place. Later, through the kindness of Drs. Hill and Thomas, a roentgenogram was taken, the result being shown in Figure 1. It was then opened and photographed (Fig. 2). With its contents it weighed 125 grains (8.09 gm.).

Postoperative History.—Except for slight ether conjunctivitis in one eye the patient made a good recovery. She had no more abdominal pain for about three weeks. About a week after the operation she passed over forty shot by rectum. They were much eroded, and that considerable lead sulphid was present in the rectum was shown by the fact that the rectal tube was always coated black after being used. The urine at this time contained a very slight trace of albumin, and a few hyaline and finely granular casts, but was not examined for lead. January 31, a roentgenogram of the patient's abdomen revealed no more shot. February 1, she complained of darting pains in her arms and legs, stiffness in her knees, slight tendency to left wrist-drop, mild colic, and dull headache. Her hands showed a fine tremor.

Blood Examination.—The red corpuscles were paler than normal, showed slight poikilocytosis and occasional stippling. The blood gave the following differential count:

Corpuscles: white, 11,000; red, 3,250,000. Hemoglobin, 85 per cent. (Tallqvist). Differential leukocyte count of 200 cells (percentages):

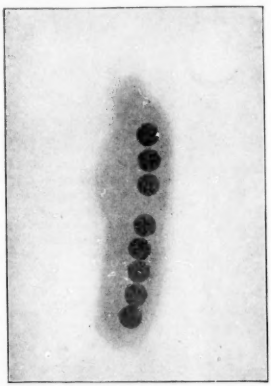


Fig. 1.—Roentgenogram of appendix containing shot.

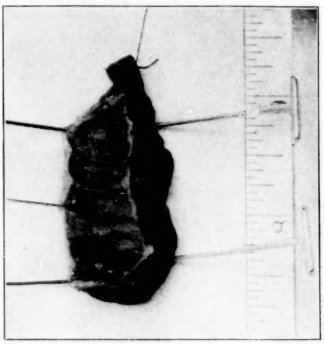


Fig. 2.—Appendix opened.

Polymorphonuclear leukocytes		72
Lymphocytes		23
Large	18	
Small	5	
Eosinophils		3
Myelocytes		1
Eosinophilic myelocytes		1
Megaloblasts		0
Normoblasts		0

The patient was put on Blaud's pills, 5 grains three times daily, saturated solution of potassium iodid, 5 minims three times daily, and an occasional dose of magnesium sulphate, and was referred to her family physician.

10406 Euclid Avenue.

The Lesson of Toledo.—Two hundred cases of small-pox were discovered in Toledo during the months of December, January and February. Of the entire number of sufferers, but one had been vaccinated, and that one was vaccinated thirty years ago. The story of the Toledo epidemic is the story of hundreds of localized epidemics the world over. An epidemic of equal severity would give to New York City 7,500 cases of small-pox in three months, or 30,000 cases in a year. Such an epidemic would be a calamity to the people and would be ruinous to the city's trade.—*Bull. New York City Department Health.*

New Instruments and Suggestions

ETHMOID KNIFE — ALLIGATOR ETHMOID AND TURBINATE FORCEPS — AN IMPROVED SINUS PUNCH

WITH ILLUSTRATIONS TO SHOW THE STEPS IN ENDONASAL OPERATION FOR PANSINUSITIS

W. PERRY REAVES, M.D., GREENSBORO, N. C.

The right-angle knife (*A*, Fig. 1, 4 mm. long) cuts on the pull. It is on the curved shank *B* (2 mm. in diameter and 40 mm. long), which slips in the barrel *C* (3.5 mm. in diameter). The hook *D* (8 mm. long) is adjustable right and left.

To cut the vertical plate of the ethmoid (septal side) from its roof, the knife is passed under the middle turbinate to the posterior nares, the shank between the middle turbinate and septum, and then the shank is pushed high up in the nose, which places the knife between the posterior tip of the middle turbinate and anterior sphenoidal wall.

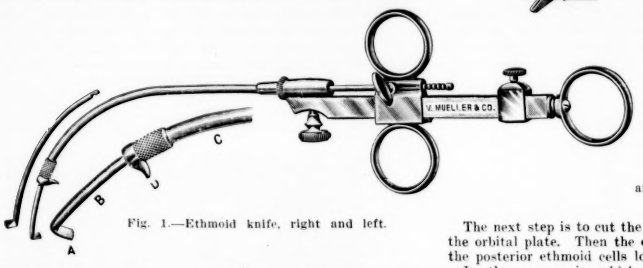


Fig. 1.—Ethmoid knife, right and left.

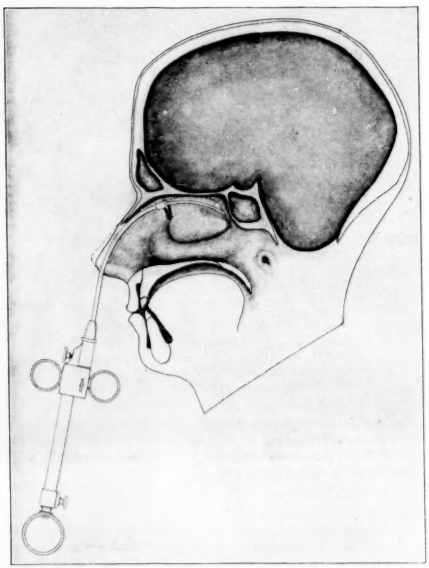


Fig. 2.—Ethmoid knife in place to cut ethmoid loose from its roof. A very slight pressure on the handle downward and backward as the knife begins to cut will make it follow the dotted lines, as the edge of the knife points a little above the shank.

If only part of the ethmoid cells and middle turbinate is to be removed, the hook (which should not be locked when introduced in a *close nose*, as it is easily anchored with a probe) is anchored at the junction of the anterior tip of the middle turbinate and ethmoid. If the high ethmoid cells, and the superior and middle turbinates are to be removed, the hook must be anchored higher in the anterior ethmoid cells, which have been opened with straight forceps as shown in Figure 2. The instrument is now in position to cut the ethmoid from its roof. Gentle pressure is made on the handle toward the patient's larynx simultaneously as the knife begins to cut, which will cause the knife's edge (which points 15 degrees above the shank) to follow the dotted lines to the roof of the nose, and also holds the barrel against the roof (the bridge) of the nose.

Fig. 3.—Small alligator ethmoid and turbinate forceps.

The next step is to cut the anterior ethmoid cells loose from the orbital plate. Then the operation is completed by cutting the posterior ethmoid cells loose with a snare.

In those cases in which the septum is deviated or the middle turbinate obstructs the nose so that the shank cannot be passed to the roof of the nose, I have had made small alligator forceps (Fig. 3), right and left, with the cutting part bent down 35 degrees from the shank, which, when introduced high into the nose, is parallel to its roof. With these punches an ethmoidectomy is just reversed, beginning at the anterior ethmoid cells. The vertical plate is cut loose from the cranial plate from before backward, and then the operation is completed with forceps and snare.

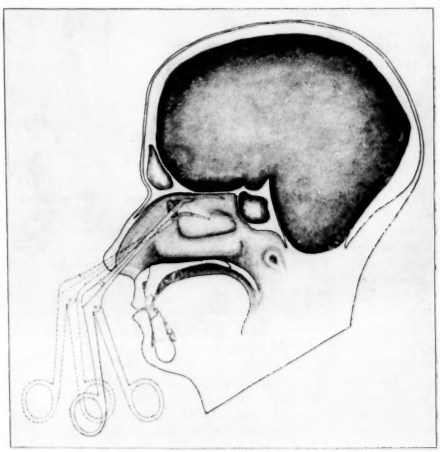


Fig. 4.—Small right alligator forceps cutting loose vertical plate of ethmoid. The dotted forceps shows position for removing middle turbinate.

The alligator forceps is also very handy for removing part or all of the middle turbinates.

Figure 5 shows ethmoidectomy shown in Figures 2 and 4 completed with superior and middle turbinates, making the maxillary, sphenoid and frontal sinus openings accessible.

The maxillary opening has been enlarged with a sinus punch, which was described in THE JOURNAL, Dec. 16, 1911, p. 1989. The improved small 4-mm. punch is introduced into the frontal sinus to enlarge the frontal duct by nibbling away any encroaching ethmoid cells.

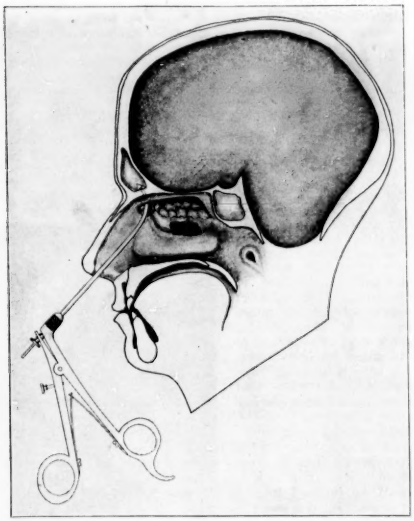


Fig. 5.—Completion of the operation in pansinusitis. The 4-mm. punch passed into frontal sinus through the nasofrontal duct. Ethmoid and middle turbinates have been removed and opening made into maxillary sinus in middle fossa.

The punch should never be introduced into the frontal sinus until the location and size of the duct are ascertained with a probe. In those cases in which the duct is found to be too small to enter with the cone tip of the punch, the duct should first be enlarged forward and laterally with Goode's rasp; then the operation is completed with the punch.

NEW BRACE FOR TREATMENT OF SCOLIOSIS

PRELIMINARY REPORT

S. KLEINBERG, M.D., NEW YORK

Chief, Orthopedic Department, Lebanon Hospital Dispensary; Assistant, Hospital for the Ruptured and Crippled; Assistant, Orthopedic Department, Mount Sinai Hospital Dispensary

After about two years' experience with the Abbott treatment of scoliosis in a series of seventy cases, it occurred to me that some of the difficulties in the treatment with plaster jackets might be overcome if a brace were used, and the one illustrated was devised.

The brace consists of pelvic and thoracic bands, three upright bars, and an accessory bar to guide the direction of the three canvas bands used to exert pressure. The pelvic band (Fig. 1, *a*) grips the pelvis firmly, and is reinforced by curved bars (Fig. 1, *b*) fitted accurately over the crests of the ilia. On the side of the deformity in front, it is provided with a hinge (Fig. 1, *c*) to allow for opening up of the brace during its application or removal. The thoracic band (Fig. 1, *d*) is so constructed that on the side opposite the deformity it lifts the shoulder up as high as possible, holding it forward also, while on the side of the deformity it is interrupted in its course across the axilla, allowing the shoulder to drop down, and is held here only by a buckle and strap; on the hollow side at the axilla it is provided with a hinge (Fig. 1, *e*). The three upright bars connect the pelvic and thoracic bands and are distributed as follows: one along the middle of the back and another parallel to the posterior axillary line on the hollow side. It is essential that this bar be on a plane behind the most prominent part of the deformity, usually from 3 to 6 inches distant from the surface of the chest. The third bar (Fig. 1, *f*, and 2, *f*) is placed in front. It is fixed to the pelvic band and adjusted

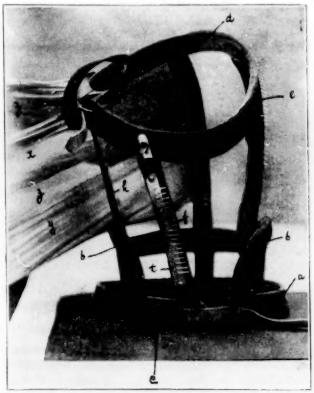


Fig. 1.—Anterior view of new brace for treatment of scoliosis.

to the thoracic band by means of a screw lock, so that it is easily detachable. This bar is bent to conform to the flexed chest.

The posterior lateral and anterior vertical bars are provided with steel teeth (Fig. 1, *t*) for the attachment of the canvas bands. The accessory bar (Figs. 1, *h*, and 2, *h*) extends upward from the pelvic band to the axilla on the side of the deformity, and serves as a guide for the canvas straps, preventing them from compressing the chest.

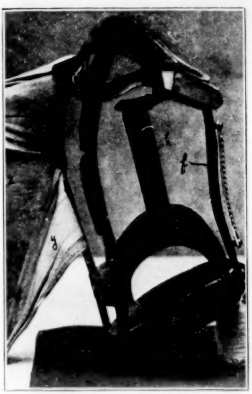


Fig. 2.—Lateral View.

To the median posterior bar are attached three canvas bands (Figs. 1 and 2, *x*, *y*, *z*). Bands *x* and *y* encircle the chest and are attached to the lateral posterior bar. Both when pulled push the ribs on the side opposite the deformity backward, tending to unrotate the spinal column; they take the place of the felt pads in the Abbott jacket. Band *y* serves also by its pressure across the abdomen to maintain flexion of the body. Band *z*, equal in width to the area of the deformity, attaches to the anterior bar, and by hugging the deformity tightly helps the action of the other bands.

To make the brace, one places the patient in an Abbott jacket, being sure to adjust the pelvis and especially the shoulders as taught by Dr. Abbott, and obtaining as much correction as possible. This jacket when sufficiently hard is cut off and filled with plaster for a torso, over which the

brace is constructed. In the brace the body can be held well flexed.

I desire to emphasize the fact that I apply the method described by Dr. Abbott in all its details, only replacing the jacket by a brace. The following advantages of the brace over the jacket seem worthy of mention:

1. It is lighter.
2. The patient tolerates the pressure more readily.
3. The corrective force can be more accurately applied and more easily controlled.
4. The one brace suffices for complete correction, and the change of jackets, with their accompanying discomfort that is indispensable with Abbott jackets, is avoided.
5. The patient's chest is more easily inspected, and the effect of the corrective pressure better observed.
6. Through better exposure it is easier to keep the body clean.
7. It is easier to examine the spine with the Roentgen rays.

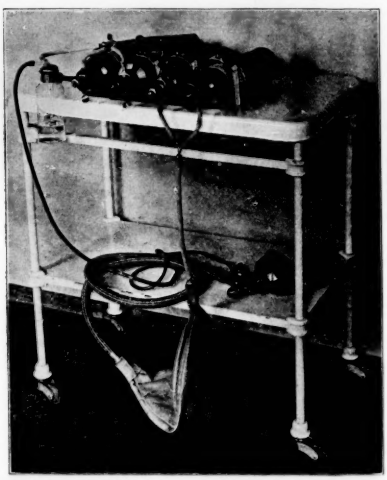
I believe this brace to be useful in the corrective treatment of scoliosis. It has all the advantages of an Abbott jacket and lacks many of its disadvantages. The brace is especially applicable to fixed deformities when there is a long single curve. In the cases thus far treated, nine in number, most of which were rigid S-shaped curves, improvement has been obtained in every instance, though no patient has been under treatment long enough for a final report.

1 West Eighty-Fifth Street.

A PORTABLE NITROUS OXID-OXYGEN APPARATUS

S. W. MOORHEAD, M.D., PHILADELPHIA
Surgeon to the Outpatient Department of the Howard Hospital

The device illustrated is a portable nitrous oxid-oxygen apparatus, embodying some of the points emphasized by Dr. Flagg (THE JOURNAL, Jan. 3, 1914, p. 35). The oxygen is admitted close to the face-piece, a feature which has been found of great practical value. The flow of oxygen is estimated by watching the bubbles of gas pass through water in a Woulfe bottle. It can be entirely shut off if desired by turning a cock on the face-piece; in this case the small bag placed between the cylinder and the bottle receives the gas till the cylinder can be closed. A more rapid flow of gas from the cylinder, with or without a shutting off of the nitrous oxid, suffices to give the patient all the oxygen ever required.



Portable nitrous oxid-oxygen apparatus. The two cylinders on the right contain nitrous oxid. The oxygen passes from the cylinders on the left through the small bag and the Woulfe bottle directly to the face-piece.

The holder for the cylinders consists of a board 15 inches long fitted with four loops of webbing for their reception. A curved steel plate with set-screw is inserted in each loop to prevent rotation of the cylinders, which to give additional security rest on the points of screws driven through the baseboard. The holder can be made to accommodate two, three or four cylinders; the four-cylinder type is the most convenient, as it enables one to empty the cylinders completely without danger of running short of gas in the midst of an anesthetization.

The whole apparatus with four or five cylinders can be carried in an ordinary traveling-bag, but on account of the weight of the cylinders division into two bags is more convenient. The weight of the apparatus exclusive of cylinders is about 7 pounds.

1523 Pine Street.

AN IMPROVED FACE MASK

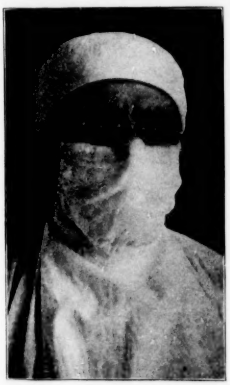
W. L. BROWN, M.D., AND C. P. BROWN, M.D., EL PASO, TEX.

To avoid the frosting of eye-glasses by the breath, and to get the upper edge of the mask out of the way of the vision, we have devised the following little improvement:

The mask is made after any desired fashion. Then a piece of lead-foil ½ inch wide and about 4½ inches long is slipped into the hem in the upper edge of the mask. The lead is of sufficient weight to retain its shape when molded down over the bridge of the nose on the cheeks. We have been using four-ply lead, such as is used about the Roentgen-ray room for protecting plates. The two thicknesses of the mask should be so folded that there will be no seam above the lead, which would be inclined to fall down or stick out and obscure the vision.

The lead is removed when the masks go to the laundry and reinserted on their return.

We have also adopted the plan of having black tapes on the upper edge, indicating which side goes up, and avoiding the possibility of getting it on upside down. The upper tapes should be tied above the ears and below the occiput, the lower, which is also a puckering string, loosely back of the neck.



Face mask with lead-foil in upper hem.

VASCULAR SUTURE IN TRANSFUSION

A SIMPLE DEVICE TO FACILITATE THE WORK *

BERNARD FRANCIS MCGRATH, M.D., ROCHESTER, MINN.

The therapeutic value of blood transfusion in severe anemia resulting from hemorrhage is generally recognized. Because of the nature of this principal indication, a device for transfusion, in order to be ideal, should be generally available.

Many apparatus have been contributed, but, whereas most of them possess some of the essential qualities, none comprehends all.

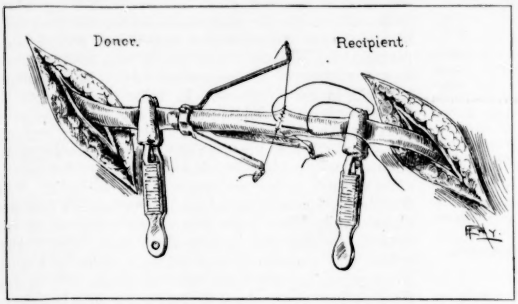
The methods of transfusion are the *indirect* and the *direct*. In recent times the indirect method has been revived and various devices for its execution have been advanced. The advantages obtained by this method, assuming the employment of the most efficient of these devices, are sureness in transmitting the blood, indication of the amount of blood transmitted and comparative ease of execution. Many successes have been reported from the use of the indirect method, but, despite this fact, it has strong opponents among physicians

* From the Mayo Clinic.

V. 191

of extensive experience. Viewed from the physiologic point of view, the burden of proof still appears to rest on the shoulders of its advocates. The appliances employed in the direct method may be divided into two general groups, namely, one in which a tube is interposed between the vessel of the donor and that of the recipient; the other, in which the intima of the donor's vessel is applied to the intima of the recipient's vessel. In the strict physiologic sense, the latter of these two groups is the true direct method, since the blood comes in contact with no foreign substance, and, consequently, is transmitted in its normal condition.

The various apparatus of the present day for aspiration-injection, together with connecting tubes, are modifications of conceptions which date far back in the history of the subject; while all cannulas for applying intima to intima are based on Crile's conception. I have already advanced a device



Instrument for vascular suture in transfusion as used in anastomosing the vessels. Particularly in transfusion, strong silk may be employed for the stays, the suture being made with the usual fine material for this purpose. Human hair is a very good substitute for the latter in case of emergency.

for the indirect method. This is a modification of the Aveling apparatus and consists of a rubber bulb drawn out into two cannula tips. This has been effective in experimentation. To avoid the possible results of retained clots, a new apparatus should be used in each transfusion. Considering the work, the cost would be negligible. Features in its favor are sureness in transmitting the blood, indication of the amount of blood transmitted, and slight demand for experience. Against it are all the arguments which prevail against the indirect method.

For the direct method I have presented a forceps-cannula. This consists of two very short cannulas which are applied to one another by means of an ordinary forceps, made suitably small and refined for the work. The principle of *cuffing* the vessels, as employed in the Soresi instrument, was adopted. Qualities in its favor are sureness in transmitting the blood, transmitting the blood in its normal condition, and comparative ease of application. Against it may be stated that it is not applicable to very small vessels, and that in case a knowledge of the amount of blood transmitted is desired, it can be acquired at present only by a calculation based on certain factors and indicated by the increase of the recipient's hemoglobin. According to my experience, however, the occasion must be rare in which a vein-to-vein transfusion cannot be accomplished with this instrument. If the veins are of small caliber, the ends may be sufficiently dilated with a forceps without detriment to the procedure.

Vascular suture for transfusion has been but limitedly adopted. The reasons are obvious. Cases are encountered, however, in which the object is best accomplished by this means, for example, when the diameter of the vessels is small. Because of this possible indication for its application, and also for the utility of vascular suture in other fields of surgery, any contribution which aims to simplify its technic has a reason for its existence.

The apparatus shown in the accompanying illustration is intended to facilitate the procedure of suturing blood-vessels in transfusion or whenever indicated.

Bearing in mind the possible difficulties, the operator should approach every case of transfusion adequately equipped to surmount any obstacle which presents itself.

SPINAL-PUNCTURE NEEDLE

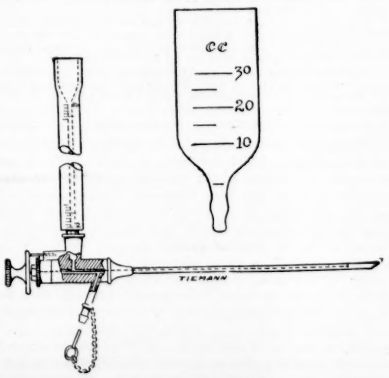
I. STRAUSS, M.D., NEW YORK

The purpose of a needle for the puncture of the spinal canal is threefold: (1) to measure the pressure of the spinal fluid; (2) to withdraw fluid through it for examination, and (3) to inject substances into the spinal canal.

The needles devised for this purpose, heretofore, have depended on the use of the three-way cock. Such mechanism is very apt to get out of order, and requires an undue amount of attention on the part of the operator in order that the flow of fluid may take its proper course.

For the past two months I have used a needle which I think overcomes these difficulties. It is efficient and at the same time easy to take care of. The needle possesses a stylet which is made so as to fit the barrel accurately, and is likewise so fashioned that it cannot be withdrawn during the use of the needle. It can be taken out for cleansing by unscrewing the cap at the end of the barrel. This cap also contains a small leather washer to prevent the leakage of fluid around the stylet, and is the only part of the instrument which may in time require renewal. The barrel of the needle has two openings. In one is inserted a glass manometer of the style used by Crohn in his spinal needle. Opposite to this opening and nearer the needle point, there is another opening, which is fitted with a plug, out of which fluid can be drawn and caught in a test-tube for examination. The manometer is of the same caliber as the needle, and registers in millimeters the height of the column of fluid from the needle level.

When in use the stylet is pulled out as far as possible. The fluid will then rise at once in the manometer. There will be no loss of fluid. The amount necessary to register 120 mm. is only 0.25 c.c. of fluid. Then the stylet is pushed back into the needle a short distance so that no more fluid can come out. The plug can then be withdrawn and the manometer emptied, if desired, or the fluid can be allowed to flow out immediately by merely drawing the stylet back again. When enough fluid has been obtained the stylet is pushed forward a short distance, stopping the flow at once, and the plug is



Spinal-puncture needle.

inserted. If then it is desired to measure again the pressure of the fluid, all that is necessary is to pull the stylet back and the fluid will rise at once in the manometer.

A graduated retainer, holding at least 40 c.c. of fluid, is provided for the introduction of medication, such as serum, into the spinal canal. This is connected by a small rubber tube to a male obturator, which fits into the opening used for the manometer. After enough fluid has been withdrawn from the spinal canal, the manometer is removed, the retainer

is attached to the instrument and the serum allowed to flow in by gravity. One important advantage of this instrument is that it can be used in removing fluid in cases of tumor cerebri, especially of the posterior fossa, without any danger, as there is no loss of fluid and the pressure can be measured without altering the intracranial pressure. In such a case, if desired, fluid for examination may be removed by adjusting the stylet in such a manner that the fluid comes out only drop by drop, and the flow can be stopped instantly.

Since devising this needle, I have found that Kausch's instrument is somewhat similar in construction, but is also complicated by stop-cocks.

116 West Fifty-Ninth Street.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTUERER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

The following preparations have been accepted for inclusion with the appendix to New and Nonofficial Remedies:

Antiseptic Supply Co., New York.

Causticks (Silver Nitrate 75 per cent.)—Wooden sticks 1½ inches long, tipped with a mixture of silver nitrate 75 per cent. and potassium nitrate 25 per cent., packed in amber glass bottles. Each stick is to be used but once.

Caustick Applicators (Silver Nitrate 75 per cent.).—Wooden sticks 6½ inches long, tipped with a mixture of silver nitrate 75 per cent. and potassium nitrate 25 per cent., packed in amber glass bottles. They are intended for use in throat and gynecologic work. Each stick is to be used but once.

Cupricsticks (Copper Sulphate 60 per cent.).—Wooden sticks 1½ inches long, tipped with a mixture of copper sulphate 60 per cent., alum 25 per cent. and potassium nitrate 15 per cent., packed in gelatin tubes. Each stick is to be used but once.

Styptsticks (Alum 75 per cent.).—Wooden sticks 1½ inches long, tipped with a mixture of alum 75 per cent. and potassium nitrate 25 per cent., packed in gelatin tubes. Each stick is to be used but once.

Factors Involved in Juvenile Delinquency.—A background for misconduct is found sometimes in moral shocks, in mental struggles or conflicts about various experiences or even in knowledge which has been repressed. Hidden worries (these are not uncommon in children) react sometimes in the same way, as also does the belief that immorality rules in the social order. A definite grudge against society is to be readily perceived in some offenders, or a disgust with the world, as the basic reason for criminalism—the individual then seems to be taking the general attitude of revenge. Another most promising subject of inquiry are the thoughts and pictures which some delinquents describe as forcefully coming up and up in their minds, driving them to misconduct. The ever-recurring idea of special criminalistic acts and the formation of a definite delinquent habit of mind are also important to discover. In general this all means a serious attempt to analyze the individual's attitude toward himself, how he became an offender, and his memory of the earliest formative influences of his whole character. For practical ends in any situation where delinquents are dealt with, such study is invaluable and our scientific knowledge of criminal beginnings may thereby be greatly enriched. For this a complete record of facts, opinions and typical expressions is obviously most desirable.—W. Healy, M.D., Bull. 12, Am. Inst. Crim. Law and Criminol.

Therapeutics

THE TUBERCULOSIS PROBLEM

(Concluded from page 1253)

Tuberculous Peritonitis.—This condition uncomplicated with tuberculosis elsewhere must, of course, be differentiated from many abdominal conditions. If there is fluid, other causes of ascites, as inflammation of the liver, serious cardiac insufficiency and ovarian cysts must be excluded. Tuberculous peritonitis may appear in several forms: the miliary form which causes ascites, the fibrocaseous, the fibro-adhesive and that which causes tumor-masses. The range of temperature (although in chronic tuberculous peritonitis there may be no increase of temperature, and it may even be subnormal), the localized tumor-masses and fluid confined to one portion of the abdominal cavity by adhesions, will aid in the diagnosis. In tuberculous peritonitis there may be more fluid on the left side of the abdomen than on the right, as the diseased mesentery retracts and draws the bowel to the right. As frequently tuberculosis is not present in other organs, the diagnosis is often difficult, and a tuberculin test is indicated. The fluid in the abdomen in tuberculous peritonitis does not contain pus, unless there is a mixed infection, as the tubercle bacillus does not produce pus. The drawn serum very frequently does not show tubercle bacilli, but a guinea-pig inoculated with the serum will, in due time, develop tuberculosis, if that is the infection from which the patient is suffering. If the exudate found on laparotomy or withdrawn for examination is bloody, it shows the disease is active. Tuberculous peritonitis may originate from infected mesenteric glands. Much false membrane is formed, which causes many adhesions of the intestines.

A patient may apparently be very well and still suffer from tuberculous peritonitis, and the prognosis is rather favorable if such a patient is operated on. It is not advisable to operate for tuberculous peritonitis if tuberculous infiltration is already in the lungs. At times, withdrawal of fluid from the abdomen by aspiration, tonic treatment, rest and the exposure of the abdomen to the rays of the sun will cause a cure. Many sanatoriums are installing the necessary equipment for giving heliotherapy, or sun baths. The direct rays of the sun are thrown on the chest or abdomen. The electrochemical action of the Roentgen ray has also been tried, but its value has not been well proved.

If the ascites tends to recur, or remains, laparotomy should be done, and sunlight let into the abdomen. Laparotomy may cure tuberculous peritonitis when there are simply tuberculous masses or tumors, but no fluid in the abdomen. It has been thought that small doses of mercury administered for a long period, especially in the form of corrosive sublimate, was of advantage in tuberculous peritonitis.

The results of operation may be summed up about as follows: There is slight danger from the operation itself. Temporary improvement may almost always be expected. Fatal cases usually terminate in a few months after the operation; while not far from one-third of all cases seem to recover in about one to two years after the operation. Antiseptic injections or continuous drainage after operation are not indicated and are useless.

Tuberculosis of the Genito-Urinary Tract.—Tuberculosis of the bladder and prostate is rarely primary,

and often has gonorrhea as an antecedent. Tuberculosis of the testicle is by no means infrequent. Removal of the testicle is of course advisable, and operative interference in the bladder and prostate may be indicated. A tuberculous kidney should be removed as soon as it is diagnosed provided the other kidney is normal. The general treatment is the same as in all tuberculosis.

Tuberculosis of the Cervical Glands.—Although this subject has already been quite largely discussed, it should be urged that while surgical removal is necessary and very frequently indicated, every gland that is needlessly removed weakens by just so much the ability of the system to protect itself against all infections. Roentgen-ray treatment, while lauded by some men, seems unsatisfactory to many clinicians. While infected or broken-down glands are being removed, the dissection should be very carefully done, lest the surrounding parts be infected with liberated germs, or if not locally infected, lest the bacilli be absorbed into the lymph circulation and cause general infection.

While a gland should not be removed merely because it is enlarged, at the same time it is a serious mistake to allow enlarged glands to cause such inflammation of the surrounding tissues as to render it necessary to remove parts of muscles, to say nothing of the danger of such chronic inflammation necessitating, during operation, injury to important blood-vessels and nerves. Glands should be removed before they cause injury to the patient or the surrounding tissues.

The tuberculin treatment of tuberculosis of the glands, especially in children, is now much in vogue, and if the tuberculin is used in carefully graded doses the results seem to be satisfactory. Caseated glands should be eradicated or curetted, however, as the tuberculin treatment will not cause resorption. Also, the exact value of the tuberculin treatment for tuberculous glands cannot be determined, as fresh air, good food, iron tonics, and medical supervision are active aids in the cure of this condition. Too large doses of tuberculin may overstimulate the diseased glands and cause general infection. Also, one does not know how many concealed diseased bronchial glands will be stimulated by the tuberculin injections; hence a very careful study of focal reaction should be made throughout the treatment. Bier's hyperemic treatment is probably inexcusable.

Bone and Joint Tuberculosis.—In tuberculosis of these parts of the body, according to Fiske, there may be a slight leukocytosis of not far from 12,000, while in osteomyelitis the leukocytosis is generally not far from 16,000.[2] Children who have bone tuberculosis frequently do well at sanatoriums or in hospitals especially arranged for their out-door or veranda treatment. They do especially well at the seashore, and direct sunshine makes a valuable addition to the treatment of this kind of tuberculosis.

Tuberculous Meningitis.—Tuberculous meningitis, sometimes called basilar meningitis, or water on the brain, may be a part of acute miliary tuberculosis, but it frequently occurs in children without other apparent tuberculosis, though careful necropsies in children dying of this disease may show signs of tuberculosis in the lungs. Tuberculous meningitis is generally a disease of childhood, occurring most frequently between the ages of 2 and 5. Measles and whooping-cough seem to be predisposing causes, simply because they irritate already infected glands, and these glands then pour out tubercle bacilli which cause a local acute infection. Tuberculous meningitis may also follow, in rare instances, a bone tuberculosis.

Enough cases are now on record to show that recovery from tuberculous meningitis is possible, so that the prognosis is not absolutely hopeless, although very dire. The little patient should be kept very quiet, and in a darkened room, and lumbar puncture should be done for relief of any symptoms of pressure, as well as for diagnostic purposes. If the child is suffering pain, codein or some form of opium should be administered, in doses found sufficient for the individual, but not large enough nor so frequently repeated as to produce coma; that is, if coma occurs it should be known that it is caused by the disease and not by the drug. The little patient should not be compelled to suffer severe pain. If food is refused, forced feeding may be advisable, but if the child is thirsty he will generally drink milk. The value of hexamethylenamin is still doubtful. It has for the last few years been thought to be a most valuable treatment in all infections of the meninges or adjacent parts, as the middle ear, etc., and in colds and sinus disturbances. Late investigations, however, show that this drug does not give up its formaldehyd radical except in such acid mediums as are found in the bladder. The drug in ordinary doses, with the kidneys intact, is harmless, however, and should be given until it is certain that it is of no value.

Acute Miliary Tuberculosis.—This occurs in several forms; one in which all the organs of the body are attacked, others in which only certain organs are diseased. In another form the tubercles may be larger and show degeneration. The disease is always serious, generally fatal, and clinically occurs as the meningeal form just described or as a general acute bronchopneumonia of both lungs, or as the typhoid type. In the lung form the sputum is loaded with tubercle bacilli and the diagnosis is readily made. In the typhoid form there may be no cough, and no real lung signs, although lesions may be found in the lungs on necropsy. It may be difficult at first to distinguish this form from typhoid fever, but the temperature is likely to be very high in the evening with considerable of a drop in the morning, and profuse sweatings. Such morning remissions occur early in the disease as distinguished from typhoid fever. The pain and tenderness in the abdomen, and the joint and cerebral symptoms, will soon make the diagnosis positive. Diarrhea generally does not occur with acute miliary tuberculosis; in fact, the patient is generally constipated—another symptom different from most cases of typhoid fever.

The treatment is similar to that of any acute infection with the exception that great care should be exercised to sterilize every excretion from the body.

ARRESTED TUBERCULOSIS

A patient who has even a temporary return to health must generally go to work, and the question of vital importance is, What shall the work be? There is no light outdoor work suitable for such recovered patients; hence, unless the occupation is one that is a menace to his health, a patient should return to his previous work. The education received during his cure should have taught him how to live to keep his health. The next important rule for him to follow is to return to his physician for observation and advice at shorter or longer intervals, depending on his general condition.

2. Fiske: Boston Med. and Surg. Jour., 1913, clxviii, 606.

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SATURDAY, APRIL 25, 1914

THE BEHAVIOR OF MALARIAL PARASITES

Now that the cultivation of malarial plasmodia outside of the body has finally been successfully accomplished through the technic devised by Dr. Charles C. Bass and his co-worker Dr. F. M. Johns of the Tulane School of Tropical Medicine, and the splendid results have been verified by Lavinder, Thompson, Ziemann and others,[1] it is time to turn attention to some of the lessons which the new experiences are suggesting. Bass[2] has lately offered some ideas relative to reproduction of the organisms, suggested by his observations of malarial plasmodia growing *in vitro* and from experiments made with his cultures. He believes that in the living body the plasmodia can pass from cell to cell only when one cell is in direct contact with another containing a segmenting parasite, and then only when the opening for the exit of merozoites occurs opposite the neighboring cell. The substance of malarial plasmodia is very different in consistency from that of red blood-cells, and therefore they cannot pass through the smallest capillaries so readily as can the more yielding fluid-like erythrocytes.

Because of their unyielding consistency, Bass believes that malarial parasites, after they attain a sufficient size, lodge in the capillaries of the body, especially where the blood-current is weakest, and where slight obstruction is produced by the protruding inward of nuclei of the endothelial cells. Here they remain and develop until they segment. In the meantime other red blood-cells are forced against them, and if the opening in the infected cell occurs in a favorable location, one or more merozoites pass directly into another cell. Otherwise the merozoites are discharged into the blood-stream and speedily killed. Whenever a segmented parasite has become sufficiently broken up it can pass on through the capillary into the circulation, where the remaining merozoites are almost instantly destroyed. The débris and pigment are phagocytized by the mononuclear cells of the blood and the endothelial cells of the vessels, and finally are either destroyed or stored in the spleen and other tissues of the body. A very heavy infection may result in plugging the brain capillaries to such an extent as to produce coma and "cerebral malaria."

Bass offers the suggestion, further, that quinin has no direct destructive effect on malarial plasmodia, the red blood-cell harboring the parasite possibly being rendered more permeable to the all-sufficient destructive influence of the serum through the undoubted detrimental influence of the alkaloid. If this be true, quinin would affect only the parasites in the circulation and not those lodged in the capillaries, which would not be reached by the drug until they segment. The effect of quinin would accordingly be defeated by any measure, either dietary or physical, whereby the permeability of the red corpuscles is likely to be decreased. This must, however, be looked on as purely hypothetical.

The size of the capillaries and the blood-pressure have an important influence on the stage at which malarial plasmodia recede from the peripheral circulation. They may be important factors in the production of "cerebral blocking." A growing appreciation of the possibilities involved may greatly facilitate the treatment of a disease in which the essential etiologic agent is at length under some degree of intelligent experimental control.

1. Bass, C. C.: A New Conception of Immunity: Its Application to the Cultivation of Protozoa and Bacteria from the Blood and to Therapeutic Measures, THE JOURNAL A. M. A., Nov. 4, 1911, p. 1534. Bass, C. C., and Johns, F. M.: The Cultivation of Malarial Plasmodia (Plasmodium vivax and Plasmodium falciparum) in Vitro, Jour. Exper. Med., 1912, xvi, 567. Lavinder, C. H.: A Note on the Cultivation of Malarial Plasmodia after the Method of Bass and Johns, THE JOURNAL A. M. A., Jan. 4, 1913, p. 42. Thompson, J. H., and Thompson, D.: The Cultivation of Benign Tertian Malarial Parasites (Plasmodium vivax) in Vitro by Bass's Method, Ann. Trop. Med. and Parasit., 1913, vii, 153. Ziemann, H.: Ueber die Bassssche Kultur der Malariaparasiten in Vitro und die daraus sich ergebenden Resultate, Centralbl. f. Bakteriol., 1 Abt., Originale, 1913, lxvii, 482.

2. Bass, C. C.: Cultivation of Malarial Plasmodia in Vitro, Am. Jour. Trop. Dis. and Preventive Med., February, 1914, p. 546.

THE OCCURRENCE OF URINARY CALCULI

Owing to the fact that in this country the occurrence of urinary calculi in man appears to be rather evenly distributed and favors no particular locality, we are liable to forget that in certain parts of the world there are circumscribed "stone districts." Some of the Scandinavian countries have been reputed to be free from the existence of these concretions; whereas in certain other regions of the world stone is a common malady. The incidence of urinary concretions can scarcely be correlated with climate or geographical location, for the "stone regions" occur in both warm and cold countries, inland as well as along the coast, in the highlands and the lowlands alike. Some indication of the wide-spread, though not uniform incidence is obtained from the statement of a recent writer who reports that there are "stone districts" in England (Norfolk, Bristol, etc.), the west of France, about Moscow in Russia, in some parts of Germany, lower Egypt, upper India and in Holland.

On the authority of A. Hirsch[1] it may be assumed that the Asiatic continent ranks first in prominence in

1. Hirsch, A.: Handbuch der historisch-geographischen Pathologie, 1883, iii, 319.

the distribution of urolithiasis throughout the world. Even in Asia, however, there are areas of immunity, so to speak, mingled with those in which stone is common. The northwestern provinces of India are said to be preeminently afflicted, whereas urinary calculi are rarely reported in the region of the lower Ganges. Similar differences exist between north and south China; the former is free from stone, which is so common in the south that special hospitals for those suffering from urinary lithiasis have been developed, in Canton for example. Indeed, this form of disease has been described as endemic for the province of Canton.

The hypotheses regarding the etiology of calculus have been so varied that it need not be considered strange if the explanations for the peculiar distribution of urolithiasis have been equally divergent. So long as the cases were grouped together in a common category quite independent of the real chemical nature of the calculi themselves, one could scarcely expect much progress in the interpretation of such disease. It would be quite as rational to class all fevers, as was once done, in a single group and hope to unravel their etiologic significance from a single symptom-complex. Concretions of inorganic salts of calcium and magnesium, oxalates, uric acid and urates, cystin and rarer components have too often been taken without further analysis as the indication of a common malady — stone. No stretch of chemical or physiologic imagination will permit so heterogeneous a group of compounds to be ascribed to a common origin, or their deposition in the kidney, bladder and urinary passages to be uniformly charged to an identical cause.

The investigations of recent years leave no doubt, further, that the individual "stone districts" show an unlike predominance of the different chemical types of calculi. In India, for example, oxalates appear to be quite prominent, pure uric acid concretions being relatively scarce. In Egypt, mixed calculi composed of oxalates and urates predominate; whereas in England they are said to be found rarely, if ever, although urate concretions are in turn extremely common there. A careful investigation made by Abderhalden and Hanslian[2] on calculi from the inhabitants of Asia Minor showed that they are essentially inorganic in character, calcium and magnesium being conspicuous. In contrast with these varied types is the latest report regarding the calculi of the Chinese, in which uric acid appears to be even more dominant than it is among the European specimens.[3] It is as yet almost futile to account for such group variations — for the incidence of oxalate concretions in Egypt and India, of urate calculi in Europe and China, or the comparative immunity of the negro races of Africa.[4] Certain hypotheses appear now to be excluded, as for example that of the peculiar posture assumed by certain of the races during micturition. This has been believed by some to favor a retention of urine in the bladder and thus facilitate precipitation of less soluble urinary components. Parasitic invasion of the urinary tract can likewise scarcely be called on to account for the diversity of phenomena reported, though at one time the frequency of stone in Egypt and Natal was attributed to *Bilharzia* eggs in the tract providing a nucleus for the deposition of urinary salts. A comparable hypothesis has been furnished for the conditions in China where the parasitic agent is the *Schistosomum haematobium*. The doctrine of the coincidence of parasitic invasion of the urinary tract and the occurrence of stone cannot be applied very broadly.

The most tenable theories undoubtedly center in nutritional causes. The intake of food and drink, varying as it does within wide limits of racial habit, geographic opportunity and economic necessity, provides factors of such unlike and manifold character that only further statistical studies can reveal the true etiologic relationships. We realize to-day that it need not be a preponderance of meat or vegetable diet, respectively, which occasions the presence or absence of urinary urate deposits. The balance of acids and bases in the organism, the equilibrium between these factors as illustrated in the resulting reaction of the urine, may be the determining cause of precipitation or solution. There is an interplay of many chemical components, the upset of which may spell disaster. The symptoms of gout, for example, are not confined solely to the meat-eating peoples. Typical vegetable dietary products like wheat and potato bring about quite unlike consequences in respect to the metabolic "rubbish" which they leave behind them. Until a more detailed knowledge of the diet of diverse peoples becomes available we can scarcely hope to solve the problems of the incidence of urinary calculi. Increasing knowledge in respect to the chemical features of both food and urine is likely to lead more speedily to defensible conclusions than are hypotheses involving questions of race, geologic conformation or contemporaneous disease.

2. Abderhalden, E., and Hanslian, R.: Beitrag zur Kenntnis der Zusammensetzung der Blasensteine von Bewohnern Kleinasiens. Versuch, die Ursache ihrer Entstehung zu ergründen, Ztschr. f. physiol. Chem., 1912, lxxx, 113.

3. Pfister, E.: Chinesische Blasensteine, Ztschr. f. Urol., 1913, vii, 945.

4. Pfister, E.: Die Steinkrankheit bei der Negerrasse, Arch. f. Schiffs- u. Tropenhygiene, 1913, p. 599.

PROSECUTION OF RESEARCH WORKERS

Elsewhere[5] appears an account of the trial of Dr. Joshua E. Sweet, one of the six members of the faculty of the Department of Medicine of the University of Pennsylvania, charged with wanton and unnecessary cruelty to dogs. Indictments were brought under the state law forbidding cruelty to animals. The principal witness of the prosecution was a former employee of the university, who testified that the cruelty consisted

5. See page 1341, this issue.

in the character of the food fed to the dogs, but who was forced to admit on cross-examination that he kept for his own profit eight hundred dogs and fed them on the same food. The other leading witness for the prosecution was a woman member of the local society for the prevention of cruelty to animals, who fainted on the witness stand when forced, under cross-examination, to contradict her direct testimony. Against the objections of the attorneys for the defense, the court allowed the prosecution wide latitude in the admission of testimony, refusing to limit the evidence to the specific instances of cruelty on the specified dates charged in the indictment. The court also permitted lay witnesses to testify on technical subjects. In his charge to the jury, the judge instructed that the legal aspect of the case was not affected by the object of the experiments and that the fact that the investigations were conducted to obtain information for the alleviation of human suffering was not an adequate defense. Here is a quotation from the judge's charge to the jury:

> I charge you that the law of Pennsylvania does not allow pain and suffering, torment or torture to be inflicted on dogs for any purpose except the relief of the suffering of the dog itself.

If there are any dog-pounds in any of the cities of Pennsylvania, the keepers would do well to inquire into the law as interpreted by the learned judge in this case, else they might find themselves liable to indictment under the same law and ruling.

According to the newspaper reports, when the case went to the jury, it developed that one member of the jury had already made up his mind, although whether his decision was reached before or after the evidence was introduced is not stated. This juror, it is said, refused even to discuss the case with his colleagues. One is led to suspect that he must have been an antivivisectionist. At any rate, the jury after forty-six hours' deliberation reported that it was unable to agree on a verdict and was discharged. The majority of the jurors were for complete vindication.

Commenting on the charge to the jury, the Philadelphia *Public Ledger* says, editorially:

> To accuse men of the foremost scientific standing in America of performing operations on dogs for the sake of gratifying their own bloodthirsty instincts is the height of wicked absurdity and comparable only with such a campaign of wilful and persistent misrepresentation as that of the recent exhibit, in the windows of a building on Chestnut Street, of practices which scientific vivisectors do not perform, either in the manner or for the purposes indicated.

The Philadelphia incident, regardless of its ultimate outcome, is of value as an illustration of the general principles underlying the position of the scientific medical profession on this subject. Briefly stated, these are that the use of animals for experimental purposes is absolutely essential to the progress of scientific knowledge for the control and suppression of human diseases. No greater calamity could befall the public than the curtailing of the liberty of scientific men to carry on such experimental work. Such a privilege, however, carries with it the responsibility on the part of all scientific men and institutions in which experimental research is carried on to take every possible precaution to avoid even the appearance of inflicting any unnecessary pain, hardship or suffering on the animals which are the subjects of such experiments and through whose pain the human race is the gainer. This case, therefore, emphasizes what is generally recognized as a fact, that it is the duty of research workers at all times and under all circumstances to avoid inflicting unnecessary pain or discomfort on the animals that are being utilized for humanity's sake. We make this as a general statement without any reason for believing that unnecessary pain and discomfort are inflicted, at least in recognized research laboratories. Heads of departments and college authorities should—and we believe do—recognize their responsibility, not only for their own acts, but also for the acts of their assistants, subordinates and employees. It is no excuse for the head of a department to say that he has done nothing for which he can be criticized or that he has given directions to his subordinates to do certain things. He is responsible for their actions. It is directly incumbent on the responsible head of each department in which animal experimentation is necessary to see to it that everything possible is done to avoid inflicting pain, discomfort and suffering on the animal so far as possible. When this is done, the responsible person should be held, not only morally, but also legally, accountable for any unnecessary or avoidable pain or suffering.

This leads to the statement of another fact, that the general laws relating to cruelty to animals, now in existence in practically all the states, are amply sufficient without any special legislation on the subject. This has always been the contention of THE JOURNAL. There is no need of special laws against the infliction of pain on animals during scientific experimentation—such laws already exist. The same law that punishes the cruel or thoughtless teamster or cab-driver will also punish the cruel or thoughtless scientific man, if such exists. The Philadelphia incident is ample proof of this. The Pennsylvania law against cruelty to animals is sufficient to punish the person guilty of such cruelty, whether he be a professional man or a day laborer.

The Philadelphia case, it is understood, will be retried—let us hope before a more judicial judge and an impartial jury. As to the ultimate vindication of the members of the university faculty, THE JOURNAL has no doubt. This case can be made of untold value to the cause of scientific research as a demonstration, on the one hand, that general laws against cruelty to animals are entirely adequate for the control of scientific experimentation, and, on the other hand, of the grave responsibility which rests on all scientific men carrying on such experiments to avoid every possible cause for criticism.

V. 191

THE BEHAVIOR OF TIN IN THE BODY

Although the salts of tin are no longer used therapeutically, the behavior of this metal in the body demands consideration for more practical reasons. Tin enters into the composition of all sorts of vessels and containers which are employed in the preparation, distribution, serving or preservation of food; and it is present in the parts of various machines or mechanical devices with which various edible products or potable liquids come into contact in the course of their manufacture into marketable form. There can be no doubt that tin has been contained in preserved foods, as a result of its being dissolved off the vessels used. Apparently, it is not often, if ever, present in sufficient quantities to induce detectable poisoning; for although some cases of "tin-poisoning" are reported in medical literature, in no instance has it been satisfactorily established that tin was the real cause of the intoxication. How little attention has been given to the toxicologic problem presented by the wide-spread use of tin is evidenced by the fact that prominent text-books on hygiene neglect to mention it at all.

The question has been raised whether or not any absorption takes place when the salts of tin enter the body by way of the mouth. The new investigations in the pharmacologic laboratory of the Bureau of Chemistry of the U. S. Department of Agriculture in Washington,[1] like earlier ones by the local government board in London,[2] leave no doubt of the possibility of absorption of tin from the gastro-intestinal canal. Indeed, it is suggested that when salts of this metal are fed over a prolonged period the alimentary mucosa may experience changes which favor the absorption of tin. Animals which had received daily doses of sodium stannous tartrate, for example, showed no tin in the urine during the first week, though it made its appearance in this excretion at a later period.

When tin is actually introduced into the circulation and thus distributed through the body, the gastro-intestinal tract appears to be the chief organ for its elimination. It is now well known that other chemical elements, like iron and calcium, are excreted through the bowel. The kidneys play a subordinate though an important rôle. Elimination of the metal is very slow, though appreciable amounts are excreted during the first day or two after its introduction into the organism.

An analysis of the organs and tissues of the body after the injection of soluble salts of tin has shown that its distribution, when once it actually reaches the circulation, must be very general. The tin disappears from the blood-stream within two or three hours after an intravenous introduction of its salts and can then be found in the liver, brain, muscles and elsewhere in the organism. The facts thus far available make it seem desirable to obtain far more extensive observations before any far-reaching conclusions concerning the hygienic relations of tin can be formulated. The studies begun by the government are timely.

1. Salant, W.; Rieger, J. B., and Treuthardt, E. L. P.: Absorption and Fate of Tin in the Body, Jour. Biol. Chem., 1914, xvii, 265.
2. Buchanan and Schryver: Local Government Board (Med. Dept.) Report of Inspector of Foods, London, 1908, p. 18.

THE RATIONAL STUDY OF THE ACTION OF MINERAL WATERS

Those who have followed the progress of investigation in the biologic sciences fundamental to the study of medicine cannot have failed to notice the change which the past decade or two has brought about with respect not only to the lines of inquiry, but also to the materials forming the objects for experimental attack. Increasing attention is being given to the study of the lower forms of life, using simpler structures and more diffuse phenomena to elucidate the more general properties of living matter. As the late Sir Michael Foster expressed it in a memorable address before the British Association for the Advancement of Science meeting in Toronto in 1897, by far the greater part of the results obtained in physiology in the past half century have been gained by inquiries restricted to about half a dozen kinds of backboned animals; the frog and the myograph, the dog and the kymograph have almost seemed the alpha and omega of the science. Of late, however, we have witnessed the return to the study of the lowest forms, as they are sometimes called; and "general physiology" with its immediate relations to the minute masses of protoplasm exemplified in the unicellular organisms and individual cells is claiming a large share of attention. First it was the morphologist who directed his energy to unraveling the secrets of the simpler units of living matter; and subsequently the physiologist began to search for the solution of the problems of function at the same source.

The classic researches of Jacques Loeb may be cited as an illustration of the far-reaching knowledge derived from the newer field of inquiry. The study of the metabolism of the egg-cell, in which morphologic and chemical transformations with their attendant energy exchanges proceed hand in hand, has revealed how profoundly the inorganic medium of the cell may affect its behavior. The developmental changes in the egg-cell have been shown by Loeb and his followers to be modified by the osmotic pressure of the fluid environment, its chemical reaction, and the specific nature of the individual ions contained therein. It has been found possible to measure the respiratory processes in these small units of living matter and to modify their production of carbon dioxid and consumption of oxygen.

The time has come to turn back from the lower forms and single-celled organisms and to ask whether the facts which have been exemplified in relation to them can be applied to the higher organisms. In the modification of such essential processes as cell oxidations the nature of the solution in which the cells are bathed has been found to be of directive moment. Can similar influ-

ences, retardations and accelerations of the function of agglomerations of cells, such as the tissues and organs of man represent, also be exerted by variations in concentration and composition of the inorganic medium which forms their environment? In attempting to bring about such changes in the higher types we are confronted by a complicating factor in the regulatory devices constantly functioning to prevent these very alterations in the medium, the blood, which determines the surroundings of the cell. The kidneys, in particular, are charged with the physiologic duty of preventing any considerable changes in osmotic concentration or elementary composition in the circulating fluid; and in health the task is well performed.

The health resort which emphasizes the virtues of the mineral waters which its visitors are advised to drink, attempts in essence to do what the physiologist has accomplished in his experiments with the isolated cell, namely, to modify cellular function by changing the inorganic medium in which the organism exists. The development of certain eggs is almost entirely retarded, for example, in the absence of one of the three essential ions, sodium, potassium or calcium. Ions of a single element, such as sodium, may be toxic when present alone, whereas the egg which exhibits the harmful effects thereof may be maintained intact in pure, distilled water. Thus it has come about that the conception of physiologically balanced solutions of various ions has been developed, the relative proportions in which they exist in sea-water being looked on as especially favorable. Can mineral waters effect any detectable metabolic changes by altering the environment of the cells, in the face of the efficient counteracting regulatory devices of the complex organisms of the higher animals? The problem is being put to the test, in the interest of rational balneology, in the physiologic laboratory of the Agricultural College in Berlin under Zuntz' guidance.[1] Experimental details are of little interest here. It may suffice at present to note that the oral administration of different combinations of ions — anions and cations — in quantities representative of the practice prevailing at various spas has actually shown the possibility of altering, though slightly, the respiratory quotient in some of the cases and of modifying the oxidative or metabolic processes in the organism. Carbonates, phosphates and chlorids of the same cations (sodium, potassium, magnesium, calcium) by no means behave alike. This experimental undertaking of Zuntz marks the beginning of a new chapter in the exposition of the rôle of mineral waters, the publication of which must await the progress of research. The completed story ought to prove of distinct value in the field of practical medicine.

1. Zuntz: Die Einwirkung der Salze und ihrer Ionen auf die Oxydationsprozesse in unserem Körper. I. Einleitende Bemerkungen. Ztschr. f. Balneol., Klimatol. u. Kurort-Hyg., 1914, vi, 333. Mäder, W.: II. Untersuchungen über den Einfluss von Salzen auf den respiratorischen Stoffwechsel, ibid., p. 363.

Current Comment

TEETH, HAIR AND DUCTLESS GLANDS

The ductless glands have been held responsible for so many functions in recent years that one hesitates to add to their share of the responsibility for the proper performance of physiologic activities. Nevertheless, new suggestions of possible influences exerted by the organs of internal secretion are still frequently being brought to the attention of scientific observers. Dr. Arnold Josefson[1] of Stockholm has sought to defend the thesis that dentition and the early development of the hair are under the dominance of some of the ductless glands. In general, his argument centers in the fact that disturbances in the normal development of the teeth and the appearance of hair on the body are associated in many cases with known defects in the behavior of some of the glands of internal secretion, and that the anomalies can be corrected in some cases by suitable organotherapy. There is nothing fundamentally new in this doctrine. It has long been maintained that the thyroid and hypophysis, for instance, exhibit what has been interpreted as a functional hypertrophy during pregnancy. It is not at all unbelievable that if these maternal glands fail to contribute a due share of their determinative products during this developmental period, the embryo may suffer in its correlative growth. Serious irregularities in the dentition or the appearance of hair in the young may become the expression of some defect in the glands like the pituitary or thyroid which, if understood, may be remediable by administration of preparations of the corresponding tissues. Josefson has furnished clinical illustrations of the simultaneous occurrence of delayed dentition and persistence of fetal hair which could be corrected by administration of thyroid extract. Abnormal dentition is common in infantile myxedema and has likewise been improved by thyroid therapy. Hypertrichosis has frequently been observed in connection with rapid development of the sexual glands. The interrelations thus brought out raise the question whether organotherapy may not have an unexpected field of usefulness during the pregnancy of mothers in whom the family history warrants the suspicion of possible hereditary defects in the offspring.

PATHOGENIC TUBERCLE BACILLI AND STREPTOCOCCI IN FRIEDMANN'S VACCINE

In our comments on the occasion of the first announcement by Friedmann of his alleged cure for tuberculosis, it was pointed out[2] that the secrecy maintained in regard to important details was not in accord with the prevailing ethical standards of the medical profession, that the proposed treatment was without any justification of an experimental nature, and that the possible danger of acquirement of or reversion to virulence of the bacilli injected appeared to overbalance whatever promises of

1. Josefson, Arnold: Dentition und Haarentwicklung (Zahn- und Haarwechsel) unter dem Einfluss der inneren Sekretion, Deutsch. Arch. f. klin. Med., 1914, cxiii, 591.

2. Friedmann's Inoculation against Tuberculosis, Current Comment, THE JOURNAL A. M. A., Dec. 14, 1912, p. 2158.

benefit the exploiter of the treatment might make. That this danger is not groundless is shown by the results of certain experiments and observations recently published by Lydia Rabinowitsch,[3] who found that of guinea-pigs injected with acid-proof bacilli from Friedmann's vaccine, some developed small foci with bacilli in them and that one presented the picture characteristic of tuberculosis produced by the inoculation of feebly virulent tubercle bacilli of the mammalian type; furthermore, in rabbits injected with large quantities, slight changes resulted. Hence the bacilli constituting the vaccine vary from the type of tubercle bacillus, namely, that of cold-blooded animals, to which it has been announced by Friedmann that it belongs and which is not pathogenic for guinea-pigs and rabbits. To say the least, this observation places doubt on the methods employed in the preparation of the product, but there are also other ways in which to account for the presence in it of pathogenic tubercle bacilli. That the methods used in the preparation of the material sold for injection are crude in supreme degree is indicated by the fact that in a large proportion of different samples Rabinowitsch found streptococci which were pathogenic for guinea-pigs. No wonder that abscesses frequently appear at the site of inoculation. In one such case Rabinowitsch found tuberculous granulation-tissue in the wall, and she quotes Westenhöfer as having made a similar observation, so that we now know that Friedmann's so-called remedy not only is subject to contamination with streptococci, but actually may contain tubercle bacilli that are pathogenic for guinea-pigs and rabbits as well as for human beings. Hence this remedy for which much has been claimed, including harmlessness, fails in this respect also—it is not harmless.

MENTAL HEALING AS A COMMERCIAL ASSET

We live in an age of wonders and of progress. The conditions of yesterday are lost sight of in the amazing progress of to-day. So great have been the advances of scientific knowledge in the last fifty years that one is prepared for almost anything. Not only in the scientific world but in commercial matters as well is progress truly astonishing. Business enterprise to-day uses the worthless by-products and waste material of yesterday. The fact that the squeal of the pig is the only thing that goes to waste in the modern stockyards has long since passed into the realm of commonplace. Yet it remains for an accident insurance company to show systematically the financial value of the denial of human ills. In the Correspondence Department this week[4] appears a letter regarding the Preferred Accident Insurance Company of New York which, it seems, employs as an adjuster in Chicago a devotee of Christian Science. He is said to be a very valuable official on account of his ability to make the people insured in his company regard their injuries from a Christian Science point of view. Heretofore, the possibilities of a healer in any of the "mental science" cults have been restricted to "absent treatment" and "mental treatment," with the acceptance of such fees as the customs of the sect have prescribed. Thanks to the Preferred Accident Insurance Company of New York, a new and brilliant future is now open to the mental healer. He can be employed on a salary by accident insurance companies to convince the policyholders that they are not really hurt and consequently have no claim against the company. But why limit such beneficent activities to insurance companies? Why cannot each railroad and street-car company have a mental healer in its employ who can hasten to the scene of the accident and convince the victims that the unfortunate event was only a delusion of their mortal mind and that nothing has really occurred to them? Nor can the development of this new and brilliant method be limited to commercial and industrial conditions. Our government is standing on the brink of war with Mexico. Why send surgeons with the battle-ships, or ambulances and hospital trains with the Army? A sufficient corps of mental healers, sent out on the battle-field after each engagement, will convince each wounded soldier that the bullet which struck him was only a delusion and that nothing has really happened. Bandages, dressings, anesthetics, instruments, hospitals, sanitary precautions and regulations are all useless. If the teachings of the "mental healer" are to be accepted, we have only to convince ourselves that everything painful, dangerous or unpleasant to ourselves or others is non-existent, in order to become prosperous, individually and nationally.

AN ENDOWED TEACHING HOSPITAL IN CHICAGO

As stated elsewhere,[1] an endowment of one million dollars has been given by Mr. James E. Deering to the Wesley Hospital, Chicago, an institution which on previous occasions has received generous aid from Mr. Deering's father and brother. Aside from the fact that the gift is large, it is worthy of special mention because of the unusual appreciation by the donor of how the gift can be made to do the most good. The income is to be used to help real charity patients, and the trustees have been requested to investigate the worthiness of those who apply, so that the gift "shall contribute everything to real charity and nothing to pauperism." Even more worthy of note, however, is the statement by Mr. Deering that "the best hospital is that which is closely related to a good medical school." He stipulates that the Wesley Memorial Hospital is to be a teaching hospital, an adequate staff to be provided by the Medical Department of Northwestern University. It is also stipulated that the medical school "must maintain and strictly enforce a high standard of preparatory studies for the admission of students." Provision is also made for the maintenance of a free dispensary and of clinical laboratories, the medical school and the hospital to share equally the expense. Power also is given to the trustees if they deem it wise to provide for lectures in public health and hygiene to be "given to the poor public either in the hospital or elsewhere." In fact, Mr. Deering gave it as his purpose "to give to the trustees of the hospital the largest possible latitude in the expenditure of the interest on the fund, provided that it shall be used for the benefit of the deserving poor." That this gift need not prevent future mergers of medical colleges or the devel-

3. Rabinowitsch, Lydia: Deutsch. med. Wchnschr., 1914, xl, 686; abstracted in the Berlin Letter, this issue, p. 1343.

4. See page 1348.

1. Medical News, page 1337, this issue.

opment of medical education in Chicago is made clear by the statement that "nothing in this deed of gift shall be construed as in opposition to the consolidation at any future time of the Medical Department of Northwestern University with one or more medical schools." One who wishes to do for the deserving sick who are unable to care for themselves could not plan better than Mr. Deering has done. The bequest which he has made, however, will not only help the thousands of sick poor who will be cared for in the Wesley Memorial Hospital, but will also help thousands of others in the future, since it is to aid in the education of physicians who thus may be more practically trained in the care of the sick.

THE PATHOGENESIS OF EPIDEMIC POLIOMYELITIS

The theory that the virus of epidemic poliomyelitis may be communicated to man by the bite of infected blood-sucking insects found a ready acceptance at a time when this mode of transmission of infectious diseases achieved so much prominence through a number of well-authenticated instances; but a new argument against the introduction by insects of the virus of epidemic poliomyelitis has just been furnished by Flexner and Amoss.[1] Their experiments emphasize the relatively great difficulty of infecting monkeys by direct introduction of the virus into the blood, which represents essentially what happens when insects bite. The infection even from very large doses of active poliomyelitic virus injected directly into the circulation is much delayed, whereas infection is promptly brought about by direct introduction of the virus into the brain, subarachnoid spaces or peripheral nerves. We may suppose, therefore, that the route by which the virus contained within the blood reaches the central nervous system is an indirect one. It is now generally conceded that the poliomyelitic virus enters the body by way of the upper respiratory passages, and in particular through the nasopharyngeal mucous membrane. Once within this membrane, the virus may pass, as Flexner and Amoss have pointed out, through the lymphatic channels surrounding the filaments of the olfactory nerve to the leptomeninges, where it reaches the cerebrospinal fluid; or it may first enter the blood and be conducted to the central nervous organs by the general circulation. The newer experiments afford valuable support to the hypothesis that infection of the nervous organs in man occurs by way of the cerebrospinal fluid. The virus readily traverses the nasal mucous membrane to reach this fluid, which is capable of carrying the virus to the interstices of the nervous tissues. Apparently, when the circulation forms the channel of entry, the virus enters the intimate structures of the nervous tissues, not directly from the blood, but indirectly in passing from the blood into the cerebrospinal fluid. To accomplish this transfer time is required, since the barrier of the choroid plexus must first be overcome. The micro-organism of poliomyelitis seems unable ordinarily to penetrate the capillaries to gain direct access to the interstices of the central nervous organs. Interstitial lesions of the leptomeninges are caused in the development of the specific lesions of the disease; and these pathologic conditions, with those of the cerebrospinal fluid itself, play an important part in the pathogenesis of epidemic poliomyelitis.

1. Flexner, S., and Amoss, H. L.: Penetration of the Virus of Poliomyelitis from the Blood into the Cerebrospinal Fluid, Jour. Exper. Med., 1914, xix, 411.

THE STORAGE OF PROTEIN IN THE LIVER

The importance of the liver as a depot for carbohydrate has been appreciated since the epoch-making discovery of glycogen by Claude Bernard more than half a century ago. A consideration of the constituents of that highly prized delicacy of diet, pâté de foie gras, and of the household remedy, cod-liver oil, brings to mind the function which the liver may perform in the storage of fat. How about proteins? Can these also be deposited in the largest of all our glandular organs, when suitable dietary conditions arise? Intimations of an increase in the size of the liver incident to a diet rich in protein have not been wanting. The older histologists believed that they discovered an appropriation of protein by the liver-cells under advantageous feeding, and an increase in the relative size or weight of the organ has been alleged to occur. It is quite conceivable that one or both of two conditions should arise, namely, (1) a mere deposition or retention of protein and (2) an actual hyperplasia of the liver. If new tissue actually is formed one would expect the other essential components which go to make up the protoplasm of the cells to be retained along with the augmented supply of protein. The experiments which Tichmeneff[1] has conducted in Hofmeister's laboratory lead to the conclusion that both the size of the liver (in relation to the total weight of the person) and the actual content of protein can be distinctly augmented by protein feeding. It would appear, therefore, that a store of all of the familiar nutrients can be retained in the liver.

1. Tichmeneff, N.: Ueber Eiweissspeicherung in der Leber, Biochem. Ztschr., 1914, lix, 326.

SPRING TONIC

In April the "patent medicine" tonic (?) flourishes. As the first warmth of spring brought a feeling of lassitude, the farmer's wife in older days would go searching through the woods for "yarbs" from which to make a brew as a tonic for the whole family. The city man, feeling the laziness of "spring fever" coming over him, brought from the corner drug-store a 49-cent package of "Old Doc" Somebody's spring tonic, consisting of the same useless "yarbs," a liberal dose of pure alcohol, and perhaps a touch of strychnin. But things are changing; there are not so many taking "spring tonics" as in the older days. Men have learned that the best spring tonics are the gifts of a beneficent Nature. A full breath of fresh spring air, a brisk walk along a grass-grown road, a plunge into the cool waters of the old swimming-hole—if the water is pure and cold—or the morning shower if in the city, fresh green food, or the pursuit after a bounding golf-ball over a springy course — those are real invigorators, true tonics.

Medical News

ALABAMA

Personal.—Dr. Russell M. Cunningham, former lieutenant-governor of Alabama and founder of the Cunningham Infirmary, Ensley, has been elected health officer of Birmingham, vice Dr. Robert Nelson, retired.——Dr. Jesse E. Robins has been appointed health officer of Ensley.

Jerome Cochran Lecture.—At the meeting of the Medical Society of the State of Alabama at Montgomery, the Jerome Cochran lecture, established in 1898 in memory of Dr. Jerome Cochran, first health officer of Alabama, was delivered by Dr. Frank W. Smithies, Chicago, on "Contributions of the Twentieth Century to the Better Understanding of Gastric Cancer."

CALIFORNIA

New Society.—The Los Angeles Obstetric Society was organized March 25, with an initial membership of forty-seven. Dr. Titian J. Coffey was elected president, and Dr. George E. Malsbary, secretary.

Personal.—Dr. Merrill W. Hill, Redlands, was seriously injured in a collision between his automobile and another motor car, April 11.——Dr. Wilfred E. Chambers, Oakland, was thrown from his automobile April 4, fracturing his right clavicle.——Dr. Norman B. Williamson, city health officer, assumed his duties at the head of the local health board at Sacramento, April 11.

County Physicians Exonerated.—The grand jury has filed the report of the investigation into the deaths of the eight patients in the Los Angeles County Hospital, alleged to have been due to the administration of neosalvarsan, placing no responsibility on the staff of the hospital, but recommending that the federal authorities be requested to exercise more stringent supervision of the importation of the remedy in order that the fresh supply may be available at all times.

ILLINOIS

Personal.—Dr. W. S. Black, Port Byron, who was stricken with cerebral hemorrhage recently, is reported to be improving.——Dr. J. Levitan of the staff of the Peoria State Hospital has been transferred to the Elgin State Hospital.

Urges Colonies for Insane and Epileptic.—In the report submitted to the governor and board of administration, April 15, Mr. A. L. Bowen, executive secretary of the State Charities Commission, recommended that the new state hospital for the insane, Alton, and the Epileptic Colony, Dixon, be constructed on the colony plan, using one-story buildings for one type of insanity and for all epileptics.

Chicago

Society Changes Title.—The Chicago Surgical Society, recently incorporated, has changed its name to the Chicago Academy of Surgery.

Typhoid Carrier.—Several cases of typhoid fever in the southwestern part of this city are said to have been traced to the Rosedale Dairy Company, an employee of which was found to be suffering from ambulant typhoid.

Endowment Fund of Rush Alumni.—Steps are being taken by alumni of Rush Medical College to create a permanent fund of $30,000, to be used for the benefit of the alumni association and a fellowship. About $10,000 has been subscribed to date. An initial gift by Norman Bridge of Los Angeles was the foundation of the fund. Life memberships in the alumni association are to be secured by those eligible, and over forty have already been paid in. At the June commencement the faculty of the college will give a dinner to the students and alumni, at which further steps will be taken.

Foreign Surgeons Visit Chicago.—Eighty-three European surgeons who were in attendance at the Fourth International Surgical Congress, New York City, arrived in Chicago, April 20, on a special train. Local members of the American Surgical Association gave a dinner in their honor at the Blackstone Hotel on that day. The next day was spent in sightseeing and visiting clinics at the various hospitals. They were given a luncheon at noon by the members of the Chicago Surgical Society and left for Rochester, Minn., in the evening. The local committee on entertainment consisted of Dr. John B. Murphy, Arthur Bevan and Lewis L. McArthur.

Gift to Wesley Hospital.—Under the head of bequests and donations in this issue was noted the gift by James Deering of $1,000,000 to Wesley Hospital. This munificent gift is to be used as an endowment fund for charity beds in connection with the Northwestern University Medical School. It is provided that Wesley Hospital shall be a teaching hospital, and that the staff shall be the faculty of the Northwestern University Medical School. Part of the income may be used for clinical laboratories and dispensaries for the school. The administration of the gift is vested equally in the hospital and in the medical school. The gift is a perpetual endowment and is made in memory of William Deering, father, and Abby Deering Howe, sister of the donor. The institution will hereafter be known as the Wesley Memorial Hospital.

Baby Week.—The Infant Welfare Society has been carrying on a campaign during the last week against the mortality of children. The week began with a public meeting at the Olympic Theater on Sunday, over which Dr. Lucius Teeter presided. Addresses were delivered by Mrs. George Bass, president of the Chicago Women's Club, on "The Interest of Women in Child Welfare"; by Judge Julian W. Mack on "The Community's Responsibility for Infant Welfare"; by Dr. S. Josephine Baker, director of the Bureau of Child Hygiene of New York City, on "The Result of Infant Hygiene in New York City," and by Miss Julia C. Lathrop, Washington, D. C., on "National Interest in Infant Welfare." The object of the campaign is to obtain funds to open fifty infant welfare stations in the city for saving of babies when the hot weather comes. Appeals to the public appear in all street-cars and on hundreds of bill-boards throughout the city, and an illuminated electric sign has been installed at State and Madison streets, bearing the legend "Baby Week, April 19-25. Help Chicago's Sick Babies. Watch the Fund Grow. Infant Welfare Society." Under this sign appears the sum added to the fund during the day.

INDIANA

Drinking-Water on Trains Tested.—The state health authorities will hereafter test the drinking-water provided for passengers on steam and electric trains. Besides the chemical and bacteriologic tests, investigation is to be made as to how often the coolers are cleaned, the quality of ice used and whether or not sanitary methods are used in handling both water and ice.

Conviction for Sale of Diseased Meat.—The Board of Health of Indianapolis, under the leadership of Dr. T. Victor Keene, has begun an investigation into the sale of diseased meat in that city. The first case tried resulted in the conviction of Charles J. Gardner, one of the more prominent packers, and a maximum sentence of six months in jail, together with a fine of $500 was imposed. "The specific offense for which Gardner was sentenced," says the Indianapolis *News*, "was charged by W. A. McConnell, chief meat inspector for the City Board of Health, who averred at the trial that Gardner, on April 2, had in the cooling-room of his meat plant the carcass of a sheep that had not been slaughtered as sheep are usually slaughtered, but had died before being butchered, and from which came an offensive odor, indicating a corrupt and unwholesome condition. Corroborative evidence to the effect that tubercular cattle and cholera hogs were also butchered in the packing-house was introduced and in the argument on the case, Robert Hughes, special attorney for the Board of Health, denounced Gardner as a "potential murderer." "It is understood this case is only one of a number that the city health officers will prosecute in order to insure clean food in the city." An appeal from the decision of the lower court is expected and the outcome of the investigation is awaited with interest.

KANSAS

New Officers.—Golden Belt Medical Society, twenty-fifth annual meeting at Junction City, April 2: president, Dr. Walter A. Carr, Junction City; secretary, Dr. Schuyler Nichols, Herington.

Personal.—Dr. John G. Horne, Coffeyville, fell April 5 and sustained serious injuries to the head.——Dr. Charles H. Kaiser, Goessel, who is suffering from a mental breakdown, has been taken to a sanatorium.

KENTUCKY

Trachoma Hospital.—The government has just located the third hospital for treatment of trachoma at Beattyville, under the direction of Dr. John Mullen, U. S. P. H. S. The other hospitals have been located at Hindman, Knott County, and Hyden, Leslie County. They are located so as to serve an area of approximately 80 by 100 miles.

Hospital Houses Medical Society.—The Board of Public Safety has granted permission for the Jefferson County Medical Society to occupy the basement room underneath the cen-

tral ward of the New Louisville City Hospital building, which the society is to fit up as its headquarters. The understanding is that the society is to furnish the room in conformity with the finish of the remainder of the hospital.

Personal.—Dr. James R. Howell, Buffalo, has been appointed United State Deputy Marshal, succeeding Dr. Lewis Ryans, Louisville.——Dr. John C. Moseley, Henderson, has been reelected second vice-president of the Henderson Anti-Tuberculosis Association.——Dr. Richard R. Elmore has been elected president of the Louisville Automobile Club.——Drs. Dunning S. Wilson, George S. Coon and Eugene Y. Johnson have been appointed members of the board of trustees of the Louisville Tuberculosis Hospital.

Changes in State Hospital Staff.—At the last meeting of the State Board of Control of Charitable Institutions the following changes were made in the state hospitals for the insane, necessitated by the resignation of Dr. William E. Gardner as superintendent of the Lakeland Hospital: Superintendent at Lakeland, Dr. Frank L. Peddicord, Boone County, now first assistant; Dr. William E. Render, Brownesville, Eastern State Hospital, Lexington, as first assistant at Lakeland; Dr. W. E. Campbell, Bowling Green, first assistant at Hopkinsville, second assistant at the Eastern State Hospital, succeeding Dr. Render; Dr. Harry G. Sanders, Campbellsville, first assistant at Hopkinsville. The changes will become effective May 1.

MARYLAND

Board of Osteopathic Examiners Created.—A bill creating a board of osteopathic examiners has been passed by the general assembly and signed by the governor.

Personal.—Dr. Delano Fitzgerald, Baltimore, has returned from a four-months' trip to the West Indies.——Dr. George Y. Massenburg, who has been connected with the government hospital in Panama, has returned to his home at Towson.

New Officers.—Somerset County Medical Society at Crisfield, April 7: president, Dr. Rastus R. Norris, Crisfield; secretary, Dr Henry M. Lankford, Princess Anne.——Anne Arundel County Medical Society at Annapolis: president, Dr. Thomas H. Brayshaw, Glenburnie; secretary, Dr. Louis B. Henckel, Jr., Annapolis.

Concert by the Physicians' Orchestra and Chorus.—At the annual meeting of the Medical and Chirurgical Faculty of Maryland, April 28 to 30, there will be a concert by the Physicians' Orchestra and Glee Club for the benefit of the building fund of the library. Dr William L. Rodman of Philadelphia will deliver the annual oration on "Gastric Ulcer and Its Treatment." Dr. John Shelton Horsley of Richmond, Va., will read a paper on "Surgical Repair of Blood-Vessels."

Typhoid Disappearing.—Statistics collected at the Health Department show that typhoid fever has been decreasing steadily for several months. Only three new cases have been reported to the department since April 1. Treatment of the reservoirs with hypochlorite of lime is given as one of the causes of the reduction of typhoid fever. The belief is current that by the time the filtration plant is in operation, possibly a year hence, Baltimore will have even less typhoid than at present. Filtration of the drinking-water will go far toward the elimination of city-bred typhoid.

Foreign Surgeons Visit Baltimore.—A large party of foreign surgeons who have been attending the International Surgical Congress in New York have arrived in Baltimore to attend a series of clinics which will be held at the Johns Hopkins Hospital. Those taking part in the clinics will be Dr. Howard A. Kelly, John M. T. Finney, William S. Baer, Richard H. Follis, Hugh H. Young and Joseph C. Bloodgood. Among the distinguished visitors are Professor Schuller of Germany, Prof. H. Morestin of Paris, Dr. Lexer of Germany, Professor Proust of the University of Paris and Prof. Carlo Gangitano of Naples, Italy, and many others.

Vaccination Campaign Ends.—Health Commissioner Nathan R. Gorter has announced that the small-pox situation in Baltimore is clearing up and that the twenty-four extra vaccine physicians recently employed will be laid off. They have worked thirty days and have vaccinated less than ten thousand persons. The number was not greater, it is asserted, because the physicians sought only those who had never been vaccinated. Their work is regarded as satisfactory and highly beneficial to the city. There have been but eleven new cases of small-pox this week and the Health Department feels that it has the situation so well in hand that it can be looked after by the regular staff of twenty-four health wardens.

MASSACHUSETTS

Personal.—Dr. William L. Richardson, Boston, has been appointed trustee of the Perkins Institute and Massachusetts School for the Blind.——Dr. William H. Davis, statistician in the vital statistics department of the Boston Health Department, has been retired on account of the abolition of the office.

New Contagious Disease Building.—Work on the construction of the new contagious disease building of the Boston City Hospital, for which an appropriation of $267,000 was made last year, is to begin very soon. The site of the building is occupied by a block of tenement houses on Massachusetts Avenue, opposite the hospital.

Children's Hospital Dedicated.—The formal opening ceremonies of the Children's Hospital, Longwood Avenue, Brookline, were held April 15. Addresses were made by President Lowell of Harvard University, Mayor Curley of Boston, Dr. Francis H. Brown, secretary of the medical staff, Dr. Edward H. Bradford, dean of the medical department of Harvard University, and others. The hospital has cost about $650,000.

MICHIGAN

Open-Air School for Battle Creek.—An open-air school is to be established at once on the second floor of a building on Champion Street, for children who will be benefited by fresh air and sunshine.

State Board Officers Reelected.—At a meeting of the State Board of Health at Lansing, April 11, Dr. Victor C. Vaughan, Ann Arbor, was reelected president, and Dr. Thomas M. Koon, Grand Rapids, vice-president.

State Epileptic Colony.—The State Epileptic Farm Colony at Wahjemeja, will open a temporary building May 1, which will accommodate twenty-five patients. The contract for the first permanent building of the colony has been let for $58,000. This building will house fifty patients, and is to be completed early in October.

Personal.—Dr. William G. Bird, wife and son, Flint, sailed from New York for Europe, April 16.——Dr. Rudolph J. E. Oden, Cadillac, will sail for Germany, May 5.——The unoccupied sanitarium owned by Dr. Charles A. Fletcher, Kalamazoo, was burned down April 9, with a loss of $40,000.——Drs. Floyd E. Westfall, Raymond A. Clifford and Harry B. Britton, advisory Board of Health of Ypsilanti, resigned April 5, it is said, because their recommendation of compulsory vaccination was vetoed by the Board of Health.——Dr. Nelson M. McLaughlin, Lake Odessa, has been appointed a member of the State Board of Registration and Medicine, vice Dr. G. W. Nafe, Fremont, deceased.——Dr. Flemming Carrow, Detroit, has been appointed consulting ophthalmologist on the staff of the Michigan Home and Training School, Lapeer.——Dr. George B. Gesner, Marshall, is reported to be very ill.

MISSISSIPPI

Personal.—Dr. Charles E. Catchings, Woodville, has been elected president of the State Board of Health, vice Dr. Morris J. Alexander, Tunica, resigned.——Dr. W. N. Reed, Fulton, has succeeded Dr. J. H. Stone, Tremont, as health officer of Itawamba County.

State Association Meeting.—At the annual meeting of the Mississippi State Medical Association held in Columbus, April 14-16, $200, or as much thereof as may be necessary, were appropriated for the expenses of the president in conducting the affairs of his office. Dr. Hugh L. Sutherland, Benoit, was elected an honorary life member of the association, the only one on its roll, and the following officers were elected: president, Dr. Jacob S. Ullman, Natchez; vice-presidents, Drs. James W. Lipscomb, Columbus; Thomas H. Seay, Laurel, and John H. Portwood, Kosciusko; councilors, first district, Dr. Thomas M. Dye, Clarksdale; second district, Dr. John C. Culley, Oxford; delegate to the American Medical Association, Dr. Lucien C. Feemster, Tupelo. Hattiesburg was selected as the place of next meeting and the date of meeting was changed from the second Tuesday in April to the second Tuesday in May.

MISSOURI

Southwest Physicians to Meet.—The Southwest Missouri Medical Society will held its annual session at Springfield, April 30 and May 1, under the presidency of Dr. Columbus J. Pike, Willard.

Would Avoid Publicity.—The Shelby County Medical Society at its March session adopted resolutions requesting editors of newspapers of the county not to use the names of any regular physician or any consultant, either in reporting cases

of sickness and accidents, or other happenings of a professional nature.

Society Incorporated.—The Buchanan County Medical Society has made application to the circuit court through Drs. Joseph J. Bansbach, president; William F. Goetze, secretary, and John M. Bell, treasurer, for a pro forma decree of incorporation. The organization will include physicians and surgeons of Buchanan and Andrew counties.

Personal.—Dr. John E. Locke has been elected mayor of Webb City.——Dr. Edgar J. Geisinger has been appointed postmaster of Unionville.——Dr. C. Vilas Martin, Maryville, underwent operation for mastoid abscess recently, and is reported to be doing well.——The office of Dr. William P. Rowland, Bevier, was destroyed by fire recently.

St. Louis

Subscriptions to Mount St. Rose.—The campaign for the Mount St. Rose Hospital closed with subscriptions amounting to $38,805.85.

Office Building for Physicians.—Ground has been broken for the Lister Annex, the second and third floors of which will be devoted exclusively to offices of physicians. The addition will cost about $60,000.

Hospital Addition Opened.—St. Luke's Hospital has just opened its new addition of seventy-five beds. This with other improvements recently made at a cost of $200,000 gives the hospital a capacity of 175 beds.

Psychopathic Court.—A psychopathic ward has been established in connection with the juvenile court, and Drs. Lister H. Tuholske and Henry J. Scherck have volunteered to make free visits to the ward twice a week to examine the juvenile offenders.

Reciprocal Concession.—In Consideration of the privilege given by the United States Government to St. Louis to use the road through the government reservation at Jefferson Barracks to reach the Robert Koch Hospital and Infectious Hospital, south of the barracks, the Board of Hospital Commissioners has agreed in the event of an epidemic that the city shall take charge of government patients.

Pure Ad Bill Passed.—The municipal assembly at St. Louis has passed the "Pure Ad" bill, making fake ads illegal. The bill had the indorsement of the St. Louis Medical Society, the Advertising League of St. Louis and other civic bodies. The bill was opposed by optometrists, the publisher of a medical journal and some retail merchants. The bill fixes a penalty of $100 to $500 for violation, and applies to all forms of advertising.

Prevention of Cancer.—The American Association for the Prevention of Cancer will hold a meeting in St. Louis, May 1, in conjunction with the St. Louis Medical Society, at which Dr. William L. Rodman, Philadelphia, representing the American Medical Association, will deliver an address.——Dr. Frank J. Lutz, St. Louis, addressed a public meeting at Marshall, April 23, on the prevention of cancer.——At a public meeting of Gasconade-Maries-Osage Counties Medical Society at Owensville, April 9, Dr. Carroll Smith spoke on the cancer question.

St. Louis Medical Society.—At the meeting of the St. Louis Medical Society April 25, medical legislation was the principal topic discussed. Attorney-General John T. Barker considered the subject from the viewpoint of the lawyer, and Dr. William S. Allee, Olean, from the viewpoint of the physician. ——June 6 the society will entertain Dr. Elias P. Lyon, dean of the Medical Department of the University of Minnesota, who formerly occupied a similar position at St. Louis University, who will deliver an address on medical education. At the same meeting, Dr. Henry M. Whelpley will give an historical sketch of the mound builders.

NEW JERSEY

Vetoes Rockefeller Institute Bill.—The governor on April 13 vetoed the Colgate bill passed recently by the legislature to enable the Rockefeller Institute for Medical Research to establish a branch at New Brunswick. The chief argument against the bill was made by a member of the Newark Vivisection Investigation League.

Personal.—Dr. William J. Hickson, Vineland, has accepted the position of chief of the Psychopathic Laboratory, Chicago. The laboratory will act as an auxiliary to the municipal courts, giving treatment instead of punishment to persons whose offenses were due to mental defects.——Dr. Francis H. Todd has resigned as member of the board of trustees of Paterson.——Dr. Alma Lapham Williston has been reappointed city physician and health inspector of Phillipsburg.

Report of the New Jersey Sanitary Association.—The thirty-ninth annual report of the New Jersey Sanitary Association has recently been issued. It is an interesting pamphlet of eighty-seven pages containing a number of valuable papers on sanitary subjects, among them being papers on "Food," by C. E. A. Winslow; "Vaccines and Serums," by Dr. Herbert D. Pease, New York; "Public Water-Supplies," by Henry M. Ogden, "Health Administration," by Homer Folks; "Open-Air Schools and Playgrounds," by Myron T. Scudder; "Disinfection," by Dr. Charles V. Chapin, Providence, R. I., and one on the "Promotion of Health and Sanitation by means of the Public Schools," by Dr. Calvin N. Kendall.

NEW YORK

Drug Bill Becomes Law.—Governor Glynn has signed the Boylan bill restricting the sale of cocain and other habit-forming drugs. The bill not only aims to penalize those who sell drugs to victims of the habit, but also endeavors to protect the dealer against those who present false prescriptions by providing that the authority of the prescription must be verified if the prescription calls for more than 4 grains of morphin, 6 grains of codein or 4 drams of chloral. The bill provides for labeling each package with the name and address of the physician under whose name the prescription is sold and the name of the person for whom it is filled. No drugs may be sold except on prescription, and accurate data concerning amounts on hand and amounts sold must be kept. The bill becomes operative on July 1.

Christian Scientists Besiege Albany.—At the hearing on the McClelland bill which would make legal the work of any person "who ministers to or treats the sick or suffering by mental or spiritual means without the use of any drug or material remedies," more than two thousand Christian Scientists from all parts of this state and many from adjoining states were present. The Christian Scientists stated that in the Medical Practice Act passed in 1907 they had supposed that they were protected by the clause "or the practice of the religious tenets of any church," but as one of their number had been prosecuted and convicted by the medical societies they want the law made so plain that the courts cannot misconstrue it. Those who opposed the bill were Dr. J. Richard Kevin, Brooklyn, representing the Kings County Medical Society, Dr. Lewis K. Neff, New York City, of the State Medical Society, Dr. Abraham Jacobi, New York City, Dr. Joseph J. O'Connell, and Assistant State Commissioner of Education Downing, who insisted that the provisions of the bill are so broad that not only Christian Scientists but spiritualists, clairvoyants, mesmerists, hypnotists and neuropaths could practice under it.

New York City

More Typhus Fever.—The White Star liner *Celtic* arrived in port with four cases of typhus fever on board and 554 steerage passengers were taken to Hoffman Island for observation——The steamship *Madonna* brought in three patients with the disease, Greeks who had fought in the Balkan War. Two hundred immigrants from this vessel were held for observation, bringing the number detained at Hoffman Island during the past week up to 1,108.

Physical Examination of Push-Cart Peddlers.—In compliance with a request from the mayor's bureau of licenses all applicants for licenses to peddle from push carts will be examined at the tuberculosis clinics of the Department of Health. No applicant whose sputum contains tubercle bacilli will be recommended for a license. Tuberculous persons who are no menace to others and who need outdoor employment will be given the preference in issuing the licenses.

Advisory Health Council.—Health Commissioner Sigismund S. Goldwater has organized an advisory council, composed of representatives of state and city departments, social and philanthropic organizations, business men's associations, labor unions, medical societies, women's organizations, etc. The following are those appointed chairmen of the departmental committees: Bailey B. Burritt, food inspection; Louis I. Dublin, records; Dr. Simon Flexner, laboratories; Homer Folks, child hygiene; Dr. Lee K. Frankel, public health and education; Dr. John H. Huddleston, infectious diseases, and Prof. C. E. A. Winslow, sanitation.

Social Service and Health Department Hospitals.—Beginning April 1, 1914, nurses from the Bureau of Infectious Diseases are visiting all cases of scarlet fever, measles and diphtheria discharged from the hospitals of the department to determine the condition of the patient on discharge and the home con-

ditions of the family. Advice is given in regard to the care of the convalescent patient and if aid is necessary the family referred to the proper charitable organization. At least one additional visit is made after the expiration of the incubation period of the disease in question to ascertain if any secondary cases have developed.

College and Hospital Affiliated.—Announcement has been made that the trustees of Columbia University and the managers of the Presbyterian Hospital have reorganized the administration of the scientific and therapeutic work of the hospital, so as to provide for a single responsibility for both medical and surgical services. Dr. Theodore C. Janeway, Bard professor of the practice of medicine at the College of Physicians and Surgeons, has been appointed medical director of the hospital. Dr. George E. Brewer, professor of surgery at the college, has been appointed surgical director, and Dr. William G. MacCallum, professor of pathology at the college, has been appointed pathologist to the hospital.

NORTH CAROLINA

Hospital Incorporated.—The State Orthopedic Hospital has been incorporated at Gastonia. This is to be an institution especially for the care of indigent children.

Anti-Mosquito Campaign.—Greensboro instituted on April 1, a vigorous anti-mosquito campaign, under the leadership of Health Commissioner Dr. John T. J. Battle.

Free Antityphoid Vaccine.—The new Hanover County Board of Health announces that it will furnish free antityphoid vaccine to every citizen applying during 1914.

District Society Meeting.—The third annual meeting of the Ninth District Medical Society was held at Statesville, April 10. Dr. John E. McLaughlin, Statesville, was elected president.

Personal.—The drug store and office of Dr. Samuel B. Medford, Clyde, was destroyed by fire April 13.——Dr. Arthur W. Callaway has succeeded Dr. Francis J. Cleminger as a member of the Asheville Board of Health.

Ambulance Corps Organized.—The Ambulance Corps of the National Guard of North Carolina has recently been organized, and the following officers have been commissioned and assigned to duty with the corps: Captain, Thomas F. Reynolds; lieutenants, John H. Mease, Francis M. Davis and Wiley C. Johnson, Canton, and J. Rufus McCraken, Waynesville.

Seeks Cooperation for Death Reports.—Dr. Platt W. Covington, Raleigh, is canvassing the state to secure active cooperation between physicians and undertakers in reporting deaths, under the new vital statistics law, passed by the last legislature, and which came into effect October 1 last. The attorney-general has indicated his willingness to prosecute offenders on information furnished by the State Board of Health.

OHIO

Combine Against Tuberculosis.—At a meeting of the District Tuberculosis Hospital, representatives from the counties of Allen, Auglaize, Van Wert, Shelby and Mercer were present. An appropriation of $20,000 was made for erecting an additional cottage to the sanatorium near Lima, to accommodate twenty additional patients. The counties of Hancock, Hardin and Putnam made arrangements to participate in the maintenance of the institution. Drs. John W. Costolo, Sidney, and Oliver S. Steiner, Lima, were appointed members of the board of trustees to fill vacancies.

Health Officers Under Civil Service.—The recent act placing state and municipal employees under civil service received varying interpretations from city attorneys, some holding that city health officers were not in the classified list, others claiming that all employees of boards of health came under the provisions of this act. Attorney-General Hogan has recently ruled that all city health officers are in the classified list, and, if in office on Jan. 1, 1914, as a result of appointment, and after taking no examination, must submit to a non-competitive qualifying examination in 1914. This ruling does not apply to village and township health officers, who will be appointed as heretofore.

Cincinnati

Antituberculosis League.—At the instance of the Antituberculosis League, the Commissioners of Hamilton County appointed Mrs. K. N. Britton as county nurse. This is a new feature in the work of the league, its nursing heretofore having been confined to the city limits.

Rockhill Sanatorium.—The increase in the applications for treatment at the new Rockhill Sanatorium has been so great as to necessitate the addition of nineteen rooms to the main building and five new bungalows. When completed the institution will accommodate thirty-five beds.

Selection of Interns.—The city hospital authorities have adopted a plan to select interns, not only from Cincinnati but from other cities as well. A list will be sent to the deans of all Class A and A+ colleges in the country, and from the results of these examinations, fourteen interns will be selected to take the places of those whose terms expire May 10.

Ground Broken for Sanatorium.—Ground was broken for the first of the new buildings of the Cincinnati Tuberculosis Sanatorium at Lick Run, March 31. Addresses were made by Mayor Spiegel, Safety-Director Dr. John R. Holmes and Judge Benton S. Oppenheimer, representing the Anti-Tuberculosis League. The sanatorium will cost about $345,000, and will accommodate three hundred patients.

American Chemical Society.—The American Chemical Society held its annual meeting in Cincinnati April 7-9. At the scientific sessions held in the auditorium of the university, much interest was evidenced in many of the papers. Dr. W. D. Bancroft's discovery of a "light without heat," or, in his own words, "the electrical firefly," excited much discussion and inquiry. Prof. Arthur L. Day related an account of his experience in the crater of an active volcano, and proved conclusively the futility of the old theories which declare the absence of water in volcanoes and the increase of temperature as the interior is approached. Professor Brooks, in a very excellent paper, discussed the "Economic Aspects of Gasoline Supply." The chemical studies of the pollution of the Ohio River, by Prof. Earl B. Phelps of Washington, was a paper of especial interest.

PENNSYLVANIA

Resign from Staff.—Drs. Michael G. Dewey, Bonaparte P. Davis, Fred Fisher, Jr., and T. Wallace O'Brien have resigned from the staff of the Altoona Hospital.

Tent City at Cresson.—The state authorities have agreed to permit the placing of tents on the grounds of the State Tuberculosis Sanitarium, Cresson, for the use of indigent consumptives of Pittsburgh. The state has agreed to furnish food and medicine for these patients, and the city of Pittsburgh is to supply the tents. The cost of a tent for four people, with equipment, is $150. The necessary amount for four of these tents has already been subscribed.

Eugenic Law Ineffective.—Pennsylvania's Eugenic Law which became effective Aug. 1, 1913, is ineffective, since only once in the nine months that it has been in operation has it been tested before a court. April 15, friends intervened when an application was made for a marriage license by Charles F. Kramlish of Allentown, Pa., former president of the State Sportsman Association, and Judge Gromer issued an order returnable in ten days to show why a license should not be refused on the score of feeble-mindedness. Mr. Kramlish is suffering from sarcoma of the brain.

Philadelphia

Scarlet Fever in School.—The development of scarlet fever among five pupils at the Convent of Notre Dame, has led the Bureau of Health to make an investigation leading to the homes of all the pupils who attend the institution. The school was closed.

Howard Hospital.—Howard Hospital has outgrown its present quarters and contemplates the erection of a $200,000 addition. The new building 40 by 100 feet, facing on Broad Street, will be six stories in height, fireproof and of steel and concrete construction.

Inter-Society Dinner.—At the annual Inter-Society dinner of the Jefferson Medical College, April 1, the toastmaster was Dr. Francis Stewart, and the societies were represented by Dr. Edward P. Davis, William W. Keen, Hobart Amory Hare, H. A. Lander, Edward A. Spitzger, William M. Late Coplin and Francis X. Dercum.

Health Department Warns against Rabies.—The Health Department strongly advises the muzzling of all dogs on the streets and urges prompt attention to all bites of animals. Within the last week a number of persons in different sections of the city have been bitten by dogs, whose brains on examination have shown positive evidence of rabies.

State Anti-Tuberculosis Society.—At the annual meeting of the Pennsylvania Society for the Prevention of Tuberculosis, Drs. Joseph S. Neff, William Duffield Robinson and William

Charles White were elected vice-presidents; Drs. James M. Anders and Elmer H. Funk were elected directors, and Dr. Thomas McCrae was elected a member of the advisory council.

Personal.—Dr. Arthur J. Davidson has been elected associate in orthopedic surgery in Jefferson Medical College.——Dr. William W. Keen was elected president of the International Surgical Association at the closing meeting of the fourth congress of that association, held in New York, April 15.——Dr. John R. Monihan, connected with the Philadelphia General Hospital, was the only applicant to qualify for promotion to assistant resident physician in the Bureau of Charities.

Psychopathic Ward for Philadelphia Hospital.—The proposed psychopathic ward for the examination and treatment of suspected cases of insanity, at the Philadelphia General Hospital, was approved by the State Board of Health and Charities April 8. The last legislature appropriated $10,000 toward its establishment, and plans are now being made to take temporary care of at least 140 persons. Persons suspected of mental disease or mental defectives will be sent to this ward and if found to be insane after a period of thirty days observation, will be sent to the Norristown State Hospital.

SOUTH DAKOTA

State Society Meeting.—The annual meeting of the South Dakota State Medical Association will be held in Watertown, May 26-28, under the presidency of Dr. Fred A. Spafford, Flandreau.

New Hospital.—Dr. Martin M. Grove has incorporated the Dell Rapids Hospital Company with a capital stock of $20 000, and has selected the site and expects to have the building completed by September 1. It will have a capacity of thirty patients.

WISCONSIN

Sanatorium Notes.—The portable cottages prepared for the patients at the Blue Mound Sanatorium, which was burned recently, have been completed and now accommodate thirty patients.——The state sanatorium board met in Detroit, March 24, and began active operations toward the construction of a state sanatorium for tuberculosis at Sanford.

Personal.—Dr. Adolph Roos, Oshkosh, sailed for Europe April 21. His practice in Oshkosh has been taken over by Dr. Edwin F. Bickel.——Dr. Forrest F. Slyfield, Algoma, has been appointed medical examiner in Algoma of the State Life Fund.——Fire in the home of Dr. William A. Fulton, Burlington, March 30, caused a loss of several hundred dollars.——Dr. Edmund H. Mensing, Milwaukee, has been appointed clinical assistant at St. Mary's Hospital, Rochester, Minn.——Dr. Gerhard A. Bading has been elected mayor of Milwaukee.

GENERAL

Railway Adopts Health Regulations.—The Cotton Belt Route has inaugurated physical examinations of its dining-car employees for the determination of communicable diseases. These examinations will be held every ninety days.

Officials Return to Canal Zone.—Dr. S. T. Darling, chief of laboratory, Ancon Hospital, and Major Robert E. Noble, Med. Corps, U. S. Army, have returned to the Isthmus from South Africa, where they accompanied General Gorgas, to investigate health conditions among the laborers on the Rand.

Canal Zone Personal.—Surg. James C. Perry, U. S. P. H. S., who resigned as chief quarantine officer, March 31, remained on request in an advisory capacity until April 14, when he sailed for the United States. He has been granted a leave of absence for one year, which he will spend in travel.——Lieut. Henry P. Carter, M.C., U. S. Army, new health officer of the Canal Zone, arrived from New Orleans, April 1.

Clean Milk.—At the annual meeting of the Commission of Milk Standards, in New York City, April 13 and 14, an organization was formed known as the Clean Milk Association, with the general objects of cooperating with producers, distributors and sanitary authorities in the production and distribution of clean milk; providing the public with clean milk by the sanitary control and handling, irrespective of treatment by pasteurization or otherwise; promoting of clean milk in accordance with the standards presented by the National Commission on Milk Standards, and approved by the American Health Association; promoting the financial welfare of the producer by organization and cooperation; regulating of the market value of clean milk by basing payments on the sanitary condition of milk as well as on the butter fat; educating the consumer to give recognition to the value of cleanliness and sanitary value in purchasing milk; condemning unfair methods of competition; and unfair means for promoting legislation, and collecting, tabulating, studying and discussing facts pertinent to the clean milk industry and to the welfare of the milk-consuming public.

Bequests and Donations.—The following bequests and donations have recently been announced:

The Presbyterian Hospital, New York City, about $125,000 by the will of Mrs. Nellie M. Noe.

Methodist Episcopal Hospital, Brooklyn, $5,000 by the will of William P. Sanford.

University of Pennsylvania, a residuary fund of $1,500,000 for the benefit of the University Library and University Hospital, department of dermatology, archeology, paleontology; College of Physicians of Philadelphia University Hospital $10,000, for the endowment of ten beds for the treatment of skin diseases; $25,000, for the maintenance of a dermatologic museum, by the will of Dr. Louis A. Duhring.

Chicago Charity Hospital, Chicago Home for the Friendless, and Chicago Home for Incurables, each $75,000 after the death of the widow of the late Kenneth S. Walbank.

Aid Association of the Philadelphia County Medical Society, $5,000, by the will of Dr. Louis A. Duhring.

Wesley Hospital, Chicago, a donation of $1,000,000 in memory of William Deering and Abbey Deering Howe, by James Deering.

European Surgeons Tour United States.—About seventy-five European surgeons who were present at the meeting of the International Surgical Congress in New York City are making a tour of the United States, including eastern cities, Chicago and Rochester, Minn. They have been entertained with clinics, banquets and receptions in many cities. Among the more distinguished visitors are: Germany—Drs. Brüning, Giessen; Franke, Brunswick; Garré, Bonn; A. T. Jurasz, Leipsig; Kraske, Freiburg; Kümmel, Hamburg; Lexer, Jena; Neuber, Kiel; Prof. A. Rehn, Frankfurt; Dr. Eduard Rehn, Jena; Ritter, Posen; Sonnenberg, Berlin; Steinthal, Stuttgart; Tölken, Zwickau; Tschmarke, Magdeburg; Witzel, Düsseldorf. Austria—Drs. Böhler, Fetschen; Doberauer, Komotau; Koller, Neutitschein; Ranzi, Vienna; Salzer, Vienna; Schloffer, Prague; Sparman, Vienna; Ullmann, Vienna; Zahradnicky, Nemecky Brod. Belgium—Drs. Depage, Brussels; Lambotte, Antwerp; Lorthoir, Brussels; Mayer, Brussels; Charles Willems, Ghent. Denmark—Dr. Oscar Bloch, Copenhagen. Finland—Drs. Faltin, Helsingfors; Granberg, Wiborg; von Bonsdorff, Helsingfors; von Numers, Wiborg. France—Drs. Hartmann, Paris; Michon, Paris; Morestin, Paris; Proust, Paris; Verchère, Paris; Villard and Durand, Lyons. Hungary—Drs. Manninger and von Kusmik, Budapest. Italy—Drs. Gosio, Turin; Gangitano, Naples; Lerda, Turin; Ceci, Pisa. Norway—Dr. Henriksen, Skien. Holland—Drs. Bierens de Haan, Rotterdam; Frank, Zwolle; Goedhuis, Deventer; Koch, Groningen; Meine Rutgers, The Hague; Renssen, Arnheim; Rotgans, Amsterdam; Schoemaker, The Hague; Van der Hoeven, Zutphen; Van der Horn, Nimègue; Westerman, Haarlem. Portugal—Drs. Bastos, Lisbon; Gentil, Lisbon. Roumania—Drs. Gerota, Bucharest; Jonnesco, Bucharest; Leonte, Bucharest. Russia—Drs. Bornhaupt, Riga; de Sawadski, Warsaw; Guinsbourg, St. Petersburg; Sapiejko, Odessa; Silberberg, Odessa; Slawinski, Warsaw. Servia—Dr. Soubbotitsch, Belgrade. Switzerland—Drs. de Quervain, Basle; Zollinger, Zurich.

Alleged Cruelty to Dogs in Experiments.—April 15, Dr. Joshua E. Sweet, one of the six members of the faculty of the medical school of the University of Pennsylvania, under indictment charged with wanton cruelty to dogs after vivisection, was on trial before Judge Bregy in quarter session court. Dr. Sweet entered a plea of not guilty. During the first day two witnesses appeared against the defendant. They were Samuel S. Geyer, who from Dec. 1, 1906, to April 8, 1913, was employed, so he said, as an assistant to Dr. Sweet, and was in charge of the kennels; and Miss Henrietta Ogden, a member of the Society for Prevention of Cruelty to Animals. Geyer described in detail the cases of half a dozen dogs who had undergone vivisection and been returned from the operating tables to his care. When it came to his cross-examination, Geyer was forced to admit, when testifying, that 1,000 dogs, on an average yearly, and 1,000 other animals went through his hands; that he, himself, and for his own profit, kept 800 dogs in the kennels, fed them on the same garbage food, and sold them. He was also forced to admit that the university provided an ice chest to preserve food for dogs and that milk was kept in it. Miss Henrietta Ogden, according to her testimony accompanied by Geyer and her sister, visited the kennels on several occasions, and witnessed the sufferings of the dogs who had undergone operation. She exhibited a series of notes of these observations and testified on direct examination that they were the originals. Under cross-examination,

however, she was forced to admit that the notes shown were copies and she fainted when Murdock Kendrick, counsel for Dr. Sweet, attacked the whole fabric of her testimony. Just as the court adjourned, counsel for the defense invited the jury, subject to the permission of Judge Bregy, to view the university kennels, stating that conditions there were the same as when Miss Ogden made her investigations and Geyer was kennel keeper. April 16 the defense began its case, and it was patent from the start that the trial did not concern itself with vivisection as such, but simply with the charges of cruelty following experimental operations, referred by the Women's Pennsylvania Society for the prevention of cruelty to animals. Murdock Kendrick and Owen K. Roberts appeared for the defendant, while Assistant District-Attorney Maurer conducted the case for the commonwealth assisted by John R. Scott, attorney for the Cruelty Society. Despite the objections by Mr. Kendrick in an endeavor to have the court confine the case to specific instances of cruelty with specific dates and requiring technical knowledge of medicine on the part of the witnesses, Judge Bregy allowed the prosecution all latitude in the admission of testimony, overruling the attorney in nearly every instance.

In opening the case Mr. Maurer explained to the jury that the commonwealth would prove that the animals to be operated on were kept in small wire-screened cages, with hard cement floors, and that, after being taken out and operated on, they were returned to these and allowed to remain suffering from wounds and effects of the operations; that they did not receive any further medical attention, nor were they furnished with proper food, what they got to eat consisting chiefly of garbage, often in a state of fermentation, and that they were neglected sometimes for several days suffering a lingering and torturous death.

Dr. Sweet, the physician under trial, was the first witness for the defense. He said he had been connected with Rockefeller Institute, New York City, was assistant professor of surgical research at the university, and had charge of the animal house, built a few years ago at a cost of $35,000 and suitably equipped for sanitary purposes. He inspected the house every day. He denied fermented food was given to dogs, which was in the form of table scraps from the university dining-room table scraps and said the nourishment they received was the best for their recovery after operations. Later witnesses corroborated this testimony. The various charges of cruelty specified in the indictments he denied. Bandages, he testified, on dogs which had abdominal incisions, were insanitary and non-conducive to proper recovery. He had taken every precaution to prevent infection. Sawdust was the best bed for the dogs, not cotton or woolen cloth, he testified. The subjects were rendered insensible to pain before all operations in which they might suffer. Geyer, the kennel keeper, he said, had never complained of the quality of the dogs' food. Under cross-examination, he denied that he or any one under his direction or with his knowledge had ever starved a dog or other animal for experimental purposes. Other witnesses for the prosecution were Miss Bertha Ogden, sister of the woman who fainted; Patrolmen Boyd and Casey of the Thirty-Second Street and Woodland Avenue police station, who testified to the quality of the food Geyer procured from the University Hospital for the dogs; Miss Mary Walker Pooley and Miss Mary Vail, both of whom had visited the animal house in search of lost pets; Joseph Conner, another pet seeker, brought into court so ill that he could hardly stand and carried out by two attendants, and Dr. James C. Corlies, president of the New Jersey State Humane Association and a veterinary surgeon of Newark.

April 17 the defense presented among others the following witnesses: Dr. W. W. Keen, emeritus professor of surgery at the Jefferson Medical College; Dr. Edward A. Martin, professor of surgery at the University of Pennsylvania; Dr. Allen J. Smith, pathologist at the university; Dr. Edgar Fahs Smith, provost of the university; Dr. Charles H. Frazier, professor of clinical surgery, and Dr. Alfred Allen, neurologist. Dr. Sweet's case went to the jury at 2:40. Judge Bregy's charge to the jury follows in part: To indicate a view on the part of these physicians that these operations on the dogs were made for scientific purposes, to obtain information for the alleviation of human suffering, I charge you that the law of Pennsylvania does not allow pain and suffering, torment or torture to be inflicted on dogs for any purpose except for the relief of the suffering of the dog itself. They have no right to torture the dogs o. violate the law, as I have read it to you, for the purpose of obtaining scientific information. The law says that any person who does a thing, as I have read it to you, that is, that a person that is guilty of wanton and cruel torture of an animal, shall be guilty a crime. The law does not say they shall not be guilty if they do it for a scientific purpose. Scientific purpose does not excuse cruelty. The physicians and surgeons other than Dr. Sweet under indictment for cruelty are: Drs. Alfred N. Richards, Allen J. Smith, Richard Mills Pearce, Alonzo E. Taylor and Edward T. Reichert. Since Dr. Sweet is the only defendant placed on trial it is generally believed the verdict in his case will decide the course to be taken in the charge of the others. The jury retired, and after forty-six hours of deliberation, reported to the judge that an agreement could not be reached, and was thereon dismissed. It is understood that a majority of the jurors was in favor of complete vindication of the defendants.

FOREIGN

Plague in Havana.—Under date of April 16 it was reported from Havana that the plague epidemic was under control, no new cases having developed during the previous forty-eight hours, though one suspect was transferred to a hospital. At least twelve cases have been reported during the epidemic. Early in the epidemic after an examination of several thousand rats with no evidence of infection it was concluded that the disease was spread by fleas carried in sacks of sugar. All ports on the Gulf and South Atlantic coast have adopted extra precautions against the entrance of the disease, and rat surveys and rat extermination are the order of the day.

Good Sanitary Conditions in Latin America.—Dr. R. E. Swigart, medical director of the United Fruit Company, who has recently returned to New Orleans from a trip of inspection in Latin America, says that the Atlantic Coast districts of Colombia, Panama, Costa Rica, Spanish Honduras and Guatemala are in better sanitary condition than ever before in history. He attributes the excellence of the health conditions largely to the efforts of the United States Public Health Service and to those of the United Fruit Company in protecting the health of its employees. The company has built hospitals at Tela and Santa Marta, which will be opened next month. A third hospital is being built at Truxillo.

School of Tropical Medicine in India.—Consul-General, James A. Smith, at Calcutta, reports that the building of the new school of Tropical Medicine at Calcutta was begun February 24. The government of India provided $195,000 for the site and laboratory, and is to contribute to the support of the school. It is said that tropical diseases cause over one-third of the deaths in Calcutta and a large proportion of the deaths in the whole country. An appeal has been issued by the promoters of the institution for financial support and students from all over the world are desired. The attention of research institutions in the United States is particularly called to the advantages of this institution for study and research by students of tropical diseases under scholarships endowed by individuals or by institutions. It is expected that the school will be completed and in running order within a year. Communications in regard to the entrance of students should be addressed to Lieut.-Col. Leonard Rogers, I. M. S., Medical College, Calcutta.

CANADA

New Officers.—McGill University Medical Society at Montreal, April 3: president, Dr. George E. Armstrong; secretary, Archie Desbusay.

License Examinations.—Examinations for license to practice medicine in the province of Alberta commenced April 24. They are being conducted by the Senate of the University of Alberta. The license to practice is issued by the College of Physicians and Surgeons of which Dr. George Macdonald, Calgary, is registrar.

Paratyphoid Epidemic.—An epidemic of paratyphoid fever is reported from sections in the province of Quebec in the neighborhood of the Richelieu River. Out of a population of seven thousand in the county of Savrevois, two thousand persons have contracted the disease and several deaths have occurred. The Richelieu River is blamed as the source of the infection.

Medical Inspection of Schools.—President Dr. Herbert J. Hamilton, Secretary Dr. W. Harley Smith and Drs. Richard A. Reeve and George D. Young, all of Toronto, recently waited on the Hon. Dr. Sebert R. Pyne, Minister of Education in the Ontario government, as a deputation from the Academy of Medicine, urging that a system of medical inspection of schools be adopted throughout the province of Ontario.

Postgraduate Instruction at McGill.—The medical faculty of McGill University announces that it will have instruction for graduate students from June 1 to June 13, inclusive. The work will be essentially clinical, and the visiting physician

will be offered the best facilities in the indoor and outdoor departments of the Montreal General, Victoria and New Maternity hospitals. Special courses may be arranged in the laboratories of the schools and in the hospitals.

Personal.—Dr. Charles Sheard, Toronto, has returned from a visit to New Orleans.——Dr. Forbes E. Godfrey, Mimico, Ont., has returned from a trip to Panama and the West Indies.——Drs. James A. and Lorne Robertson, Stratford, Ont., are taking a trip to the Mediterranean.——Dr. J. R. Dutton has been appointed superintendent of the Alexandra Contagious Diseases Hospital, Montreal.——Dr. Hibbert W. Hill, London, Ont., has been appointed executive secretary of the Minnesota Public Health Association.——Dr. Francis A. R. Gow, Halifax, N. S., has been appointed chief medical officer and inspector of that port.——The salary of Dr. Seraphin Boucher, health officer of Montreal, has been increased from $4,000 to $5,000.——Dr. Leo E. Pariseau has been appointed medical officer of health of Sherbrooke, Que.

Hospital News.—The cost of maintaining patients in the Vancouver General Hospital advanced in 1913 to $2.11 per patient per day. In 1912 it was $1.98. Just how this hospital has grown in the past twelve years is seen from the fact that at that time it contained 45 beds with a staff of 29. The hospital has now 415 beds and a staff of 205; and the building is to be further enlarged during the coming summer. ——A new hospital is to be built at Nakusp, B. C.——A hospital is to be established at Summerland, B. C., at a cost of $6,000. A development company has donated the site valued at $2,300.——The Royal Inland Hospital at Kamloops, B. C., treated 1,287 patients in 1913, at a cost of $1.95 per patient per day.——A hospital is to be built at Estevan, Sask.——The Northern Saskatchewan Hospital for the Insane has been completed at Battleford at a cost of $1,250,000. It is beautifully situated, has extensive grounds and a farm of 2,000 acres. It has accommodation for 600 patients and has a staff of 55 persons. Patients were removed to this new institution from the old hospital in Brandon late in February.——The Regina (Alta.) General Hospital is being enlarged. The new wing will be ready for occupation in July. Last year 1,976 patients received treatment. One hundred and fourteen deaths occurred. Of 150 patients in the isolation department, five died.——New hospital regulations have been adopted in the province of Alberta. Every municipality where a patient has been in residence for three continuous months is made responsible for the maintenance of that patient if unable to pay. The new regulations also require fully equipped clinical laboratories in every hospital, proper means for disinfection and a mortuary. Each hospital shall also provide for the care of cases of acute delirium and pulmonary tuberculosis, unless there is a sanatorium established in the province.——Manitoba will hereafter give $1.50 per patient per day to all hospitals of that province instead of $1 as formerly, that is, for indigents. The Manitoba government has also guaranteed the bonds of the Winnipeg General Hospital to the extent of $400,000.——Notre Dame Hospital, Montreal, is to be enlarged. Last year the number treated totaled 2,572 patients. In the St. Paul Annex for Contagious Diseases, 1,314 patients were treated.——Quebec is to have a new Isolation Hospital at a cost of $90,000.——The Canadian Copper Company at Copper Cliff, Ont., has finished a new hospital to replace the building destroyed by fire in 1912. The cost of the new institution was about $200,000. Dr. Albert G. McAuley is the superintendent.——The Guelph (Ont.) General Hospital is to be enlarged at a cost of $44,000, of which amount $28,000 was provided by a recent by-law.——Hamilton, Ont., has appropriated a site of 15 acres for a new hospital on the top of the mountain at that city.——The new wing in course of construction at the Kingston General Hospital is to have accommodation for forty patients.——Prince Edward Island Hospital now comes in for a bequest of one-half of the estate of the late Mr. Starr of Litchfield, Conn., the legatee who had been receiving the income having died.——Newcastle, N. B., is to have a new hospital at a cost of $30,000.

LONDON LETTER

LONDON, April 10, 1914.

Fly Prevention

The part played by flies in the transmission of disease is receiving considerable attention from health authorities in this country. A letter signed by 123 health officers has been published in the daily press appealing to the public to cooperate with the health authorities in destroying the breeding-places of flies. It is pointed out that summer diarrhea is probably conveyed by the common house-fly. It is useless to try to tackle the problem by attempting to kill individual flies, because of the enormous offspring of one female. Each householder must see that his back yard is scrupulously clean and his dustbin protected. Manure, when practicable, should be dug in at once. If the heap has to be kept, the top and sides should be covered with a layer of earth. The children in the schools should be taught the life history of the fly and its capacity for harm. The Boy Scouts could undertake the supremely useful work of tracking down the breeding-places of flies and notifying the health authorities. Moving pictures could help even more than they do at present by films showing the full life history of the insect and the damage it does.

Death After Swallowing Radium

An inquest has been held on a woman who died after an operation to recover a tube of radium which she inadvertently swallowed. She was under treatment for deafness. A metal cylinder containing radium and mesothorium was inserted alternately into each ear and nostril, and on an attempt being made to withdraw the cylinder from the left nostril was found to have disappeared. Roentgenoscopy revealed it in the patient's stomach, and emetics having failed, an operation was decided on. This was successful, but shortly afterward the patient collapsed and died. Death was attributed to the injection of atropin and scopolamin before operation.

The Royal Commission on Venereal Diseases

At the twenty-third meeting of the Royal Commission on Venereal Diseases, Miss Albania Broderick, representing the National Council of Trained Nurses, gave evidence. She thought that nurses had not been properly taught with regard to these diseases and that a special course was necessary. The education of the general public should include education of children in the laws of sex. This might be done in primary schools through the medium of botany, which would prepare the way for teaching later in regard to the human subject. Special teachers would be required until parents were sufficiently educated to instruct their own children. In this matter Miss Broderick considered that we were much behind other nations and referred to the work done by the Society of Sanitary and Moral Prophylaxis of the State of New York. A great factor in the spread of venereal disease was the ignorance in which women had been left. She condemned the practice of physicians treating women without letting them know the nature of the disease. Greater facilities were required for treatment, and evening clinics were specially important. Printed instructions should be given to outpatients dealing with the gravity of the disease and the danger of infecting others.

BERLIN LETTER

BERLIN, April 3, 1914.

Personal

Professor Ludloff has accepted the call to Frankfort-on-the-Main and has rejected the one to Berlin.

Professor Göppert of Marburg has accepted the position as director of the Institute of Anatomy at Frankfort.

Professor Bethe of Kiel has been appointed director of the Physiological Institute of that place.

Professor Emil Abderhalden, physiologist of the University of Halle, has declined the call to lecture in New York next fall. He will also not accept the summons to deliver courses at the Association of American Agricultural Colleges and Experiment Stations in Washington.

The Friedmann Tuberculosis Remedy

In the number of the *Deutsche medizinische Wochenschrift* just issued, the well-known tuberculosis expert and collaborator of Professor Orth (Prof. Lydia Rabinowitsch), publishes an interesting article on the Friedmann remedy, chiefly on the basis of bacteriologic investigation. Like Vulpius and Laubenheimer, she found the remedy contaminated. Of ten samples, six showed, from a microscopic examination or by culture, the presence of other bacteria from non-acid-fast bacilli or cocci, and, in some cases, streptococci. Contaminations were discovered in ampules not older than forty-eight hours, which was the time limit imposed by the manufacturer. The age of the preparation, however, did not seem to affect the contamination. The Friedmann remedy, therefore, cannot be regarded as entirely harmless. While there is some variance in the races cultivated from the Friedmann material in the first generation, the differences disappear gradually after their cultivation. The growth of the Friedmann bacilli at incubator temperature and their avirulence for turtles

were calculated to indicate that the characterization of the Friedmann culture as a turtle tubercle bacillus is not entirely correct. A number of experiments were made on guinea-pigs with the Friedmann culture derived from an American source (Barnes), as well as with the races isolated by the author from the Friedmann material, to determine the question of avirulence as asserted by Friedmann. Part of the guinea-pigs lived for months without showing any changes suspicious of tuberculosis at necropsy. Another part, which were inoculated at the same time, showed more or less pronounced foci, suspicious of tuberculosis, in the enlarged glands, liver or spleen from which acid-fast bacilli could be recovered again in pure culture. The suspicious foci, on reinjection, however, produced no tuberculous process. In connection with the second class, there was one series of four guinea-pigs which were injected in November with various amounts of a six-day culture obtained from Ampule 2. After three months one of these died with what proved to be, on examination, a typical picture of an injection tuberculosis produced by a mammalian tubercle bacillus of feeble virulence. The three other guinea-pigs injected at the same time showed, when killed a few days later, no pronounced tuberculous changes.

In Germany, as well as in America, inoculation abscesses have been reported not only on application of the commercial preparation, but also in cases treated by Friedmann himself. No sufficient investigation has been made to determine whether the contamination of the injection material on the market is responsible for these abscesses or whether they were due solely to the action of the acid-fast bacilli. Furthermore, it was shown by numerous experiments on guinea-pigs and rabbits that even the uncontaminated remedy may have a pathogenic action. Dr. Rabinowitsch emphasizes on this account the experiences of all experimenters which have shown that races of tubercle bacilli of slight virulence may, from hitherto unknown reasons, suddenly assume an increased virulence. For this reason, the proposition to inject healthy persons for the purpose of prophylaxis should, in her opinion, be most emphatically condemned. She agrees with Vulpius and Laubenheimer that remedies of this sort should be produced and distributed only under the control of the state. It would be still better, at any rate for the patients, if such remedies should be subjected to an exact experimental and clinical trial before they are given to the public.

Professor Rabinowitsch hesitated for some time before publishing these results in view of the fact that Kraus had proclaimed the complete harmlessness of the Friedmann remedy and of the fact that Schleich had accused her of being an opponent of Friedmann and his discovery, but after the report of unfavorable results both in America and Germany, she believed that the publication of her results ought not to be delayed longer. Her investigations of the unfavorable facts in reference to the pathogenesis of the Friedmann culture should be the more interesting, inasmuch as Friedmann in reply to the publication of Vulpius and Laubenheimer has stated that the complete harmlessness of the remedy has been established according to a report given by Ehrlich to the government. It is well known that Ehrlich received from Friedmann, not his remedy, but the culture of the turtle tubercle bacilli which he investigated for its harmlessness. The remedy, as the investigations of Vulpius and Laubenheimer show, may be contaminated to a great degree with other germs, while this need not be true of the acid-fast Friedmann race of bacilli. The remedy and the culture are not at all identical, and this should be emphasized again, although attention has already been drawn to this difference, and even if the race investigated by Ehrlich proved to be harmless, this is no indication that the varieties of the Friedmann bacillus obtained by various workers from the pus of abscesses as well as from the commercial injection material will show the same behavior in animal experiments.

Standardization should naturally be applied not only to the Friedmann remedy, but also to that recommended by Piorkowski, as well as to the preparation of turtle tubercle bacilli of Karfunkel, which was used for a short time in Berlin and later, like the Friedmann remedy in the State of New York, was forbidden by the health department.

The Number of Woman Physicians in Germany

The number of woman physicians in Germany is steadily increasing. In 1908 there were but 55, two years later 102, and in 1913 the number grew to 195. Of the larger cities, Berlin leads with the greatest number. In 1910, there were 32; in 1911, 34; 1912, 45, and in 1913, 56 woman physicians. Munich had in 1913, 13; Breslau, 10; Hamburg, 9; Frankfort and Dresden, 7; Mannheim, 6; Hanover, Cologne and Stuttgart, 4; Leipsic and Düsseldorf, 3 woman physicians.

Marriages

JOHN ALEXANDER POWERS, M.D., to Miss Stella Kelley, both of Warrensburg, Mo., at Kansas City, Mo., April 4.

LEE PERRY PAULL, M.D., to Mrs. Lillian Thorp Minahan, both of Los Angeles, at Riverside, Cal., March 31.

RICHARD A. KEARNEY, Asst. Surg., U. S. P. H. S., to Miss Edmonia Adams at Washington, D. C., April 21.

DONALD H. NOBLE, P. A. Surg., U. S. N., to Miss Ann Elizabeth Leary of Washington, D. C., March 14.

HENRY ALBERT SLUSSER, M.D., to Miss Edith Crummie, both of Dayton, O., at Detroit, Mich., April 6.

WINFIELD SCOTT PUGH, JR., P.A. Surg., U. S. N., to Miss Irma May Poka of San Francisco, April 6.

WARD HUGHES POWELL, M.D., Minden, N. D., to Miss Gerda Hasselbach of Omaha, Neb., April 7.

ARNGT A. SOLBERG, M.D., to Miss Olga Grotte, both of Ispheming, Mich., April 4.

ALEXANDER C. FLACK, M.D., to Miss Lena Koch, both of Fredonia, Kan., April 11.

JACOB BRESSLER, M.D., to Miss Marian Schlesinger, both of New York City, April 7.

Deaths

Joseph L. Geyer, M.D. Starling Medical College, Columbus, O., 1869; a Fellow of the American Medical Association, and one of the founders of the Muskingum County, Ohio Medical Society; a member of the Baltimore and Ohio Railway Surgeons Association, and International Association of Railway Surgeons; for more than forty years local surgeon at Norwich, O., for the Baltimore and Ohio System; a veteran of the Civil War; died at his home in Norwich, April 3, from pneumonia, aged 74.

John Devette T. Hand, M.D. New York University, New York City, 1881; a member of the Medical Society of the State of New York; president of the village of New Berlin, N. Y.; formerly a member of the Chenango County Board of Supervisors; from 1908 to 1914 coroner of Chenango County; died in a hospital in Utica, N. Y., April 8, a week after a surgical operation, aged 55.

John Alexander Fitz Hugh, M.D. Western Reserve University, Cleveland, 1880; Hahnemann Medical College, Philadelphia, 1881; a member of the Massachusetts Medical Society; vice-president of the Essex North District Medical Society; consulting physician to the Anne Jacques Hospital, Newport, Mass.; died at his home in Amesbury, Mass., March 21, from diabetes, aged 59.

Benjamin F. Duke, M.D. University of Nashville, Tenn., 1871; a member of the Mississippi State Medical Association, and a Confederate veteran; formerly a member of the Mississippi State Board of Health, and for eighteen years quarantine physician of Jackson County, Miss.; died at his home in South Pascagoula, Miss., April 7, from hemorrhage of the lungs, aged 71.

Francis S. Wilson, M.D. Jefferson Medical College, 1870; a Fellow of the American Medical Association; for many years president of the Montgomery County (Pa.) Medical Society; lazeretto physician in Philadelphia during the Cleveland administration; died in his apartments in Jenkintown, Pa., April 7, from heart disease, aged 70.

James E. Banks, M.D. Tulane University, New Orleans, 1886; a member of the Mississippi State Medical Association; formerly president of the Lawrence-Jefferson Davis Counties Medical Association; and health officer of Jefferson Davis County; died at his home in Prentiss, Miss., January 28, from chronic nephritis, aged 52.

William Stockton Wilson M.D. Jefferson Medical College, 1861; a member of the Medical Society of New Jersey; surgeon of the One Hundred and Fifty-Fifth and Two Hundred and Tenth Pennsylvania Volunteer Infantry during the Civil War; died at his home in Newark, N. J., April 10, aged 75.

Morris Parker Boyle, M.D. University of Pennsylvania, Philadelphia, 1898; a Fellow of the American Medical Association; for several years resident physician of the Children's Hospital, Philadelphia; a practitioner of Glenside, Pa.; died at his home in that place, April 10, aged 37.

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Philip Mansfield Fitzsimmons, M.D. University of Vermont, Burlington, 1892; a member of the Massachusetts Medical Society; formerly medical inspector of schools, library trustee and a member of the school board of Cambridge, Mass.; died at his home in that city, April 4, aged 56.

William R. Mandeville, M.D. Tulane University, New Orleans, 1871; one of the founders of the New Orleans Surgical and Medical Association; at one time Acting Assistant Surgeon, U. S. Army; an expert on yellow fever; died at his home in New Orleans, April 10, aged 62.

William D. MacQuisten, M.D. Michigan College of Medicine and Surgery, Detroit, 1891; a member of the Michigan State Medical Society and a practitioner of Detroit; died in St. Mary's Hospital in that city, April 6, from disease of the throat, aged 52.

William Thomas Kirby, M.D. Northwestern University Medical School, Chicago, 1897; a Fellow of the American Medical Association; and a private banker of Chicago; died in Wesley Memorial Hospital in that city, April 16, from tumor of the brain, aged 42.

Warren S. Briggs, M.D. Hahnemann Medical College, Chicago, 1879; formerly professor of surgery in the homeopathic department of the University of Minnesota, Minneapolis; died at his home in St. Paul, April 6, from double pleuropneumonia, aged 59.

James A. Bainbridge, M.D. Eclectic Medical Institute, Cincinnati, 1864; a pioneer resident of San Joaquin County, Cal., and a resident of Lathrop; died at the home of his daughter in Redwood, Cal., April 5, from senile debility, aged 81.

Charles Arthur Darby, M.D. Tufts Medical School, Boston, 1909; a Fellow of the American Medical Association; died in his private hospital in New Bedford, Mass., March 30, from abscess of the lung, following pneumonia, aged 37.

Franklin Joseph Slough, M.D. Homeopathic Medical College of Philadelphia, 1863; one of the oldest practitioners of Allentown; a trustee of the Rittersville, Pa., State Hospital; died at his home in that city, April 3, aged 72.

Samuel C. Thomas, M.D. Eclectic Medical Institute, Cincinnati, 1858; said to have been the oldest practitioner of Rush County, Ind.; died at his home in Milroy, Ind., about April 8, from cerebral hemorrhage, aged 81.

Charles F. Lauer, M.D. New York Homeopathic Medical College, 1863; a surgeon of volunteers during the Civil War and for three months in Libby Prison; died at his home in Brooklyn, N. Y., April 9, aged 74.

Celia M. Haynes, M.D. Cleveland University of Medicine and Surgery, 1877; an army nurse during the Civil War; one of the first women to practice medicine in Chicago; died in St. Luke's Hospital, April 9, aged 69.

Duke C. Darnell, M.D. University of Louisville, Ky., 1888; formerly chief surgeon of the Texas Short Line Railroad and Texas Pacific Railroad at Grand Saline, Tex.; died at his home in Vernon, Tex., April 4, aged 53.

Herman Milbacher, M.D. University of Munich, Bavaria, 1881; a member of the Illinois State Medical Society; and a well-known practitioner of Aurora; died in Long Beach, Fla., April 11, aged 63.

Everett Herrick, M.D. Jefferson Medical College, 1851; a Fellow of the American Medical Association; died at his home in New York City, April 1, aged 84.

Ella Gertrude Smith, M.D. Boston University, 1884; formerly of South Boston, Mass.; died at her home in Kearsarge, N.H., December 2, aged 59.

De Elton Oliver Thayer, M.D. Bennett Medical College, Chicago, 1910; of Ysleta, Tex.; died in a hospital in El Paso, March 30, aged 32.

William H. Hawley, M.D. Eclectic Medical College of the City of New York, 1851; died at his home in Penn Yan, N.Y., March 29, aged 89.

William De Haven Eaches, M.D. Hahnemann Medical College, Philadelphia, 1894; died at his home in Phoenixville, Pa., March 11, aged 41.

Joseph P. Vickers (license, Minn., 1887), a practitioner since 1861; died at his home in Barnesville, Minn., March 30, from senile debility.

R. W. Garnett (license, Mo., 1883), for fifty-eight years a practitioner of Chalk Level, Mo.; died at his home, April 1, aged 85.

Harry F. Seaman, M.D. Geneva (N.Y.) Medical College, 1871; died at his home in Alton, N.Y., February 16, aged 71.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

PEARL LA SAGE COMPLEXION TREATMENT

The Beauty-Making Potentialities of Washing Soda and Borax

Pearl La Sage conducts a fraudulent mail-order business from 2120 Michigan Blvd., Chicago. She separates the credulous from their cash via the "beauty treatment" route. No matter how atrocious your complexion, send your money to Pearl La Sage, and you will "have a perfect complexion in ten days." Realizing that people's tastes differ, Pearl promises:

"You may have a pink, creamy or downy complexion just as you wish—and without any change in the treatment."

Physicians not infrequently find it impossible to help the complexion of women who are suffering from certain diseases. Realizing that the bad complexion is but a symptom and not a disease, the doctor naturally believes that the way to attack

Develop Your Bust
In 15 Days
New Way Home Treatment
Instantly
Successful
I don't care how thin you are, how old you are, how fallen and flaccid are the lines of your figure or how flat your chest is, I can give you a full, firm, youthful bust quickly, that will be the envy of your fellow-women and will give you the allurements of a perfect womanhood that will be irresistible.
The Charm of a Full, Firm Bust is Worth More to a Woman Than Beauty
ELOISE RAE
1325 Michigan Avenue, Suite 2286, Chicago, Ill.
Every Blemish Removed
In Ten Days
I WILL TELL EVERY READER OF THIS PAPER HOW—FREE
Your Complexion Makes or Mars Your Appearance
All Methods Now

Typical advertisements of the Eloise Rae "bust developer" fake and the Pearl La Sage complexion treatment fraud. Both concerns seem to have originated in the fertile brain of C. E. Zimmerman.

such troubles is to remove the cause. No such limitations hamper Pearl La Sage, although she admits that a bad complexion is frequently the result of bodily ills. Says Pearl:

"In ten days you can be the subject of wild admiration by all your friends, no matter what your condition of health."

"No matter what the cause, my ten day complexion treatment will give you a perfect complexion in ten days."

As is usual in such cases, it is probable that Pearl La Sage is really but a figure-head. The company, Pearl La Sage, Inc., seems to have been organized by three men:

C. E. Zimmerman.
A. O. Hupfeld, Jr.
James A. Hall.

C. E. Zimmerman seems to have been president of the Della Carson concern that exploited a fraudulent mail-order "beauty treatment." Zimmerman is said to have been made president of the Della Carson Company when the Leven Advertising Company took over the Della Carson business at the suggestion of some of the latter's creditors. Zimmerman also seems to have operated a fraudulent mail-order bust-developing business under the style Eloise Rae. One of the advertising assets in the Eloise Rae concern was a testimonial letter from the Leven Advertising Co. In this connection it is worth noting that a letter from the Hall-Stockton Printing

Co., signed James A. Hall, is used by the Pearl La Sage concern to prove its "responsibility, honesty and business standing."

There is of course, nothing to show that the Pearl La Sage concern is not the business of Pearl La Sage herself. The usual stock-in-trade of the mail-order faker is used to sell this "ten-day" complexion treatment: lying advertisements in such newspapers as are willing to become *particeps criminis;* booklets, freely illustrated with pictures of Pearl La Sage—pictures, by the way, which leave the casual observer in doubt as to whether it is a complexion treatment or a bust developer that is being sold; pictures, also, depicting hypothetical scenes, showing the dire effects of a bad complexion; and last, but not least, the inevitable follow-up letters.

The booklets of these mail-order fakers are an interesting study. In cases like those of Pearl La Sage, where the pocketbook rather than the health is involved, such brochures will be found to furnish a good deal of amusement. One of the Pearl La Sage booklets contains a double-page picture of a ball-room, showing all the ladies with good complexions dancing, while an unfortunate female in the foreground with a much besplotched face, is sitting out the dance alone. On another page is a pen drawing of a court scene, bearing the legend "The Divorce Courts Tell Their Tale of Complexion Value." A man and woman, presumably husband and wife, stand before the judge's bench, the woman with a bowed head—and, of course, pimply face—the man looking back toward the rear of the court room at an engaging young female with a clear skin.

Again: a tear-stained, specklefaced wife, gazes sadly at a grandfather's clock which points to a late hour. She sees, as in a vision, her belated husband dancing with a lady whose skin—and much is exhibited—seems to be all that could be desired. The legend reads: "The Neglected Wife has Learned Bitterly the Value of a Perfect Complexion." It is this picture, evidently, that is referred to in another pamphlet sent out by Pearl, when she says:

> "Think of the mad tragedies of wives sitting alone at home, watching the clock through tear-dimmed eyes, when they fear that some woman of a softer skin has coaxed their husbands from the paths of righteousness."

For fear that the reader may think this picture somewhat overdrawn, Miss La Sage gives the assurance:

> "This is not dream-stuff, good sister; it is true and you know it and I know it, and every woman who has felt the bite of jealousy and desertion knows it."

Nor are the men neglected: "Complexion means as much to a man as to a woman." Thus runs the legend to a pen picture showing a jaunty young fellow, with effeminate features and the skin of a baby, being gazed at longingly by several boy-struck girls.

THE TREATMENT

"The price I have asked for my ten-day treatment is $10," but as Pearl wants your good will, she offers it to you at the ridiculously low price of $3. Wait a few weeks, however, and a "follow-up" letter will give you a chance to get the treatment for $2. Further hesitation brings the offer down to $1 with a free copy of Miss La Sage's "Ten Stage Secrets of Beauty" thrown in for good measure.

Those who send the money for the "New, Different, Scientific Treatment" of Pearl La Sage, receive 30 pale pink tablets and the same number of capsules, containing a coarse white powder. The recipient is told not to swallow the tablets nor the capsules. To change a sallow, pimply skin into a perfect complexion in the short space of ten days: Dissolve one tablet in a quart of warm water and splash the water on your face at night; empty the contents of a capsule into a quart of cold water and splash your face again in the morning! That is all!

One point that will tend to give an air of mystery to the scheme is the fact that when these pale pink tablets or white powders are dissolved in water, they produce a handsome carmine liquid. The chemist's report which follows, explains this phenomenon:

A. M. A. LABORATORY REPORT

The Pearl La Sage Complexion Treatment consists of capsules and tablets of each of which there are about thirty. The contents of the capsules consisted of a coarse, white, odorless powder which had a strongly alkaline taste and which incompletely dissolved in water to form a red, alkaline solution. The contents of 10 capsules weighed 12.7386 gm. or about 20 grains for each capsule. The tablets were a pale pink color and ten of them weighed 7.5160 gm. or nearly 12 grains each. The tablets were partially soluble in water to form a red solution having a strongly alkaline taste. Qualitative tests demonstrated the presence of a borate, a carbonate, sodium and phenolphthalein in the contents of the capsules. A borate, a carbonate, sodium, phenolphthalein and powdered talc were found in the tablets. Other substances were not present in appreciable amounts. Quantitative analysis of the two preparations gave the following results:

	CAPSULES	TABLETS
Sodium carbonate (Na_2CO_3)	68.10	53.98
Sodium borate ($Na_2B_4O_7$)	10.42	23.60
Phenolphthalein	4.05	5.02
Talcum		3.28
Water (loss at 100 C)	17.06	16.19

From the results of the examination it is concluded that the contents of the capsules are composed essentially as follows:

Monohydrated sodium carbonate ($Na_2CO_3.H_2O$)	80 parts
Dried sodium borate (dried borax)	16 parts
Phenolphthalein	4 parts

The results of the examination indicate that the composition of the tablets is about as follows:

Monohydrated sodium carbonate ($Na_2CO_3.H_2O$)	63 parts
Dried Sodium borate (dried borax)	29 parts
Phenolphthalein	5 parts
Talcum (talc)	3 parts

In addition to the "complexion treatment" Pearl La Sage sends with it some of what she calls laxative "pills." These were small, brown, tablets. Preliminary tests indicated that they contained some anthraquinone bearing drug, probably extract of cascara and a trace of an alkaloid, probably strychnin.

SUMMARY

Evidently, therefore, the Pearl La Sage treatment consists essentially of a weak solution of ordinary soda and borax, with a little phenolphthalein as a coloring agent. And this is the mixture which is sold at an exorbitant price, under the claim that: "It heals, soothes, cleanses, softens and beautifies the skin, removing all impurities, pimples, blotches, blackheads, eruptions, sallowness or lack of color, muddy complexion, liver spots and other skin imperfections."

When the public can be defrauded as easily as this, is it any wonder that actresses and others forsake the ill-paid drudgery of hard work for the "easy money" in fraudulent mail-order schemes?

THE HYPOPHOSPHITE FALLACY

An Example of the Perpetuation of a False Theory by Advertising

A false therapeutic notion born of speculation soon dies a natural death if exposed unsupported to the cold world of facts, but when nursed by commercial interests it may be kept alive for generations. Interesting examples of this, to name but two or three, are the misconceptions perpetuated during the past half century concerning "lithia," the "natural" salicylates and the hypophosphites.

Take, for instance, the lithia delusion. The supposed solvent powers of lithium compounds for uric acid were soon disproved to the satisfaction of scientists, but proprietors of lithia waters and nostrums for gout and rheumatism still harp on the old string and utilize long-exploded theories. Take, again, the alleged superiority of "natural" to "synthetic" salicylates. In spite of experimental proof to the contrary, proprietary interests have been able for twenty years to persuade a large part of the medical profession that the effects of pure salicylic acid made artificially differ from the effects of the same substance obtained from natural sources.

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The altogether undeserved continued popularity of hypophosphites affords a striking example of the influence of advertising in perpetuating therapeutic error, for hypophosphites are given on a theory long since disproved. It may be interesting to trace the origin and history of the theory on which the practice of prescribing the hypophosphites is founded. The early part of the last century was prolific in chemical discoveries, and, as a corollary, in chemical theories of disease. Many of the theories arose from the hasty application of the chemical properties of new elements and compounds to the explanation of the processes in the living body, without due consideration of the conditions prevailing in the animal organism.

THE ELEMENT PHOSPHORUS

The element phosphorus is eager for oxygen and readily oxidizable. When taken into the system it acts as a violent poison, and, in view of this, it was at first supposed—although the supposition was based on no scientific data—that it would prove to be a powerful therapeutic agent when given in minute doses. In its elementary form, phosphorus is difficult to handle, and therefore not convenient for use. Hence it was natural that a compound should be sought which could be used as a substitute for the element.

Broadly speaking, phosphorus forms three classes of salts varying in the degree of oxidation: the phosphates, containing the most oxygen, the phosphites, containing less, and the hypophosphites, least of the three. The phosphates, being saturated with oxygen, undergo little change in the body, and because of this were thought to be of little value in therapeutics. The phosphites contain less oxygen, are unstable and are not used in medicine. The hypophosphites, containing still less oxygen, stand nearest to elementary phosphorus and are easily decomposed and readily oxidized to phosphates. Hence the theory that the hypophosphites would furnish an admirable source from which to obtain the action of the element phosphorus.

CHURCHILL'S THEORY

The hypophosphites were introduced into medicine about 1855, as a substitute for elementary phosphorus by a Dr. Churchill of Paris, and later of London, who advocated their use as a specific remedy for consumption. Churchill conceived the theory that phthisis is caused by a lack of oxygen in the tissues; he therefore sought an agent capable of increasing oxidation. He was led to the use of hypophosphites for this purpose on the supposition that phosphorus exists in the organism as a biologic element in a lower degree of oxidation than the phosphate. He supposed that this form of phosphorus acts by its chemical affinity as an initiatory agent in attracting and utilizing the inspired oxygen. He believed that when this form of phosphorus, which he called the "phosphide element," is deficient in quantity (because it had been oxidized into phosphate, or because the supply from natural sources was deficient), the degree of oxidation of the tissues is less than normal. Therefore he advocated the use of hypophosphites to supply the lacking oxidizing constituent. He believed this "phosphide element" not only to be essential for the oxidation of the tissues, but also to be the source of energy of the nervous system.

THE FACTS

The theory was a pretty one; the facts, however, did not support it. Subsequent investigations indicate that instead of consumption being due to a lack of oxygen, there is in that disease really an increased oxidation; in other words, the respiratory exchanges in this disease are exaggerated. The existence in the system of a form of phosphorus less highly oxidized than the phosphates is unproved. No evidence has been produced to show that phosphorus acts as an energizer of oxidation. There is no proof that the hypophosphites enter into general metabolism or affect disease processes in any way. Not only is there no scientific evidence for the utility of the hypophosphites, but science has long since demonstrated their worthlessness.

In 1895 Boddaert[1] published researches showing that hypophosphites are rapidly eliminated through the kidneys unchanged. Similar results have been reached by Paquelin and Joly, who attributed to the hypophosphites only the action of diuretics. In 1901 Massol and Gamel[2] found by animal experimentation that the hypophosphites did not act as diuretics, but that the hypophosphorous acid was completely eliminated in the form of sodium hypophosphite. The urea was not increased and the relation of urea to total nitrogen remained the same. Their results indicated no increase of oxidizing actions within the system. Finally, Massol and Gamel examined the urine of patients taking hypophosphites and found the same conditions: the results were the same as in the experiments on animals.

PROPRIETARY THERAPEUTICS

In spite of these facts the hypophosphites continue to be employed by many practitioners. Why? Because the theory, being plausible at the time when such chemical theories were popular, gained a certain recognition and was accepted without scientific investigation. Thus the hypophosphites came into use. It was not long before they were taken up by certain manufacturers, and the theory on which their use was based became a commercial asset. As a result the theory, which uncommercialized would have died of inanition, was kept alive by continued advertisement.

The manufacturer of proprietaries having settled on a plausible theory on which to sell his products has no further need for science. Thus, while these theories are no longer to be found in accredited text-books, they are still preached by the proprietary interests. An elaborate pamphlet on "Iodine and Phosphorus," containing statements which are known to be false, is one firm's text-book supplied to physicians to-day, and contains long quotations from Dr. Churchill's writings of sixty years ago. This book contains no intimation that these theories have been overthrown. It is poor economy to waste money in changing literature when the old theories and the old plausible reasoning will sell goods just as well. Consequently the old errors are drummed into those physicians who are willing to read their physiology from the neat monographs of proprietary literature and to sit at the feet of glib salesmen who expound to them the proprietary theory of therapeutics.

1. Boddaert: Arch. de pharmacodynamie, 1895, ii.

2. Massol and Gamel: Jour. de pharm. et de chim., 1901, xiv, 337.

THE DUKET CURE "BLOWS UP"

Mr. Lorimer's Money Allows a Scientific Demonstration of the Obvious

About a year ago, THE JOURNAL gave its readers the results of an investigation of a widely heralded "cure" for consumption put out by one Peter P. Duket, M.D. Duket originally exploited his cure in Findlay, Ohio, but failing to make a commercial success of it there, he attempted to obtain a license to practice in and to transfer his wretched business to Colorado. A wide-awake board of medical examiners frustrated this attempt. Duket finally came to Chicago, where he was able to interest those who controlled Bennett Medical College in his "cure"; these, in turn, enlisted financial assistance from ex-Senator Lorimer to "investigate" the "cure." Incidentally, Duket obtained a license to practice in Illinois. Then followed the second exploitation of this fraud on the consumptive.

As a result of its investigations, THE JOURNAL showed, as will be remembered,[1] that Duket was a man of no scientific standing and of unsavory professional reputation; it showed that in eighteen cases investigated, the past record of Duket's "cure" gave a mortality of about 80 per cent.; it showed that the publicity and the professional recognition then being given Duket's "cure" was utterly unwarranted.

The only answer forthcoming to these criticisms was that THE JOURNAL'S articles were an "attack" on Duket personally. Meanwhile, Mr. Lorimer's money was being freely spent to give added publicity to this worthless "cure." A mailing-list was compiled—said to contain some 140,000 names—and bulle-

1. See THE JOURNAL A. M. A., May 10, May 24 and July 5, 1913; also the pamphlet "Consumption Cure Fakes," price, 10 cents.

tins were sent out at stated intervals advertising the "cure" far and wide. This went on for some months, and then a news item appeared in the Chicago papers announcing, unofficially, that the "investigation" of the Duket cure had demonstrated its worthlessness. These items appeared Nov. 4, 1913. So far as THE JOURNAL has been able to learn, however, the 140,000 persons who received the bulletins advertising the "cure" have never been sent the final report, showing its worthlessness.

After waiting some weeks, THE JOURNAL wrote asking when the public would be notified of the results of the investigation. No definite reply was given on this point, but some time later a copy of the "report" on the "cure" was received for publication. This "report" was returned with the suggestion that it be given to the country through the same avenues of publicity that had been used in cruelly raising the hopes of the consumptives. It was again asked whether the facts were going to be given the public. No reply was forthcoming.

In view of this, it becomes the unpleasant duty of THE JOURNAL to give what publicity it can to the essential parts of the report by Duket's backers on the Duket "cure." The findings are really summed up in the following paragraph, taken from the report as submitted to THE JOURNAL. The capitalization is ours:

"It may at once be stated that the investigators and authors of this report have finally come to the conclusion that there are ABSOLUTELY NO MERITS IN THE DUKET TREATMENT of tuberculosis; that the method is VASTLY INFERIOR TO ANY OF THE APPROVED SYSTEMS of treating pulmonary tuberculosis; and that their observations would indicate that the DUKET TREATMENT MAY SOMETIMES LEAD TO ALBUMINURIA."

Summed up, then, every contention made by THE JOURNAL regarding the worthlessness of Duket's "cure" has been proved! At an expenditure of thousands of dollars a self-evident fact has been verified—a fact that THE JOURNAL gave to the medical profession and the public a year earlier!

In discussing the possible composition of Duket's secret "cure," THE JOURNAL admitted its ignorance on this point, but stated that there was evidence which indicated that Duket was using a widely advertised consumption "cure" known as the Hyer-Baldwin preparation, consisting of carbonate of guaiacol, salicylic acid and glycerin. Here is what the report has to say regarding the composition of the nostrum:

"The chemicals used in the so-called Duket cure for tuberculosis are *carbonate of guaiacol, salicylic acid*, bicarbonate of soda, carbonate of potash and a small amount of nitric acid, all of which are dissolved in *glycerin*. This solution is diluted with distilled water and sometimes a trace of tincture of chlorid of iron is added." [Italics ours.—ED.]

What does it all mean? That a self-evident fraud has been seriously studied and gravely reported to be a fraud; that, after exhaustive research costing thousands of dollars, scientific men solemnly affirm that the moon is not, and probably never was, made of green cheese!

But the expenditure of money and brains on a quest of this sort, while a woful economic waste, could be overlooked if that were the only thing involved. In reality, this is the smallest part of it. The most expensive element in this widely advertised piece of miscalled research was paid for, not in money, but in the blasted hopes and shattered desires of a myriad of unhappy consumptives.

UNITED DOCTORS LEAVE SOUTH BEND; DR. S. M. BARTLETT, SUCCESSOR—ANOTHER NEWS ITEM

The latest town to be abandoned by the United Doctors is South Bend, Ind., where Lee B. Kinsey, brother of Ben W. Kinsey, the original promoter, lived and had his headquarters. From there he directed the offices at South Bend, Elkhart, Kokomo, Muncie and Evansville, Ind., and several in northern and western Ohio and a number of offices in Michigan. Most of these offices, like the one at Muskegon, Mich., where the owners were sued for rent, died a natural death. The office at South Bend, which had been making a desperate struggle for some time, in a last spurt advertised in the South Bend and nearby Indiana and Michigan papers about the middle of February that the "President of the Medical Staff of the United Doctors" would be in South Bend for a week. Everybody was advised to come in and take advantage of the opportunity to see this "past master in the art of healing." His name was not mentioned. Evidently the invitation to come in was not accepted to any great extent, for shortly the announcement was made that Dr. S. M. Bartlett, who had supplied the office for a year or more, had succeeded the United Doctors and was occupying the same offices. Bartlett now advertises under the name "Dr. S. M. Bartlett, Specialist," and in his advertisements calls himself "Master Specialist in chronic diseases." He is an example of the way in which the United Doctors make "specialists" in a short time out of indifferent or poor material, and foist them on the public as men with special skill and training. Bartlett graduated in 1904 at the Physio-Medical College in Indiana, which went out of existence in 1909. Until a little over two years ago he practiced at Oakford, Howard County, Ind., a town of 150 inhabitants, which has not supported a physician since he left. After leaving Oakford he became one of the hired men of the United Doctors at Kokomo, Ind., where he was immediately made one of the United Doctors' "great specialists," and was then transferred to the South Bend office.

Correspondence

A Christian Scientist as Adjuster of Accident Insurance Disability*

To the Editor:—I wish through your columns to inform the profession, especially those in Illinois, that the Preferred Accident Insurance Company of New York employs as an agency superintendent and adjuster in Chicago a man who is understood to be a devotee of Christian Science. What this means to the patrons of this company in this district can be readily appreciated. As I have written to the officers of the company, it would seem as reasonable for a fire-insurance company to employ a blind man to adjust a fire loss as for an accident company to adjust accident insurance disability of its patrons by the aid of one who religiously believes there is no actual pain, disease or disability.

I have asked of the home office for the name of the medical director of this company in order that I might call his attention to this fact, but have not been able to secure the name of that official. If you can give me his name please do so.

GEORGE N. KREIDER, M.D., Springfield, Ill.

Correction of Error

To the Editor:—In the article on the "Progress of Orthopedic Surgery," by Dr. J. D. Griffith (THE JOURNAL, March 7, 1914, p. 748), the following error should be corrected:

Dr. Griffith, under the head of scoliosis, states that "after having pursued this treatment [with the Abbott plaster-of-Paris jacket] in a great many cases of lateral curvature, Abbott's conclusions are as follows:

"1. Rotary lateral curvature of the fixed type, developed in childhood and persisting in adolescence, cannot be cured perfectly.

"2. The condition of the patient can be much improved.

"3. The anteroposterior postural deformities can be corrected.

"4. The lumbar lordosis can be corrected.

"5. The lateral deviation of the body can be corrected.

"6. The lateral deviation of the spine is corrected in early cases.

"7. The rotation of the vertebrae may be improved but not corrected.

"8. The use of the plaster jacket, applied by the Abbott method in flexion with corrective felt pads, is very satisfactory, in that we are enabled to obtain the result in a shorter time than by any other method of treatment heretofore practiced."

These are my own conclusions and have been copied from my article printed in the *New York Medical Journal* of

* See Current Comment, this issue.

Nov. 22, 1913, from a paper entitled "Recent Progress in Orthopedic Surgery," which I send you herewith and which reads as follows:

"In the *New York Medical Journal* of April 27, 1912, the same journal in which Abbott's last article appeared, there was also another by the writer, entitled "Rotary Lateral Curvature Based on the Report of Results Obtained." My conclusions at that time have since been substantiated. They are in brief: 1," etc., as above.

Dr. Griffith has also copied from this article elsewhere in his paper, to which one would have no objection provided that quotation marks were used and the references given in each instance. CHARLES OGILVY, M.D., New York.

[The preceding letter was referred to Dr. Griffith, who replied:]

To the Editor:—I am very sorry indeed that I understood from the paper in the *New York Medical Journal* that the conclusions were Dr. Abbott's and hence did not give Dr. Ogilvy credit. I did not and do not claim a particle of originality in the review on "The Progress of Orthopedic Surgery," and used the article of Dr. Ogilvy as I did those of Goldthwaite and others. I am sorry I did not mention Dr. Ogilvy as I should have. J. D. GRIFFITH, M.D.

Holmes, Not Semmelweis

To the Editor:—In preparing, a few years ago, material for a publication on "Epoch-Making Contributions to Medicine and Surgery," I had occasion to look up the subject discussed in the Current Comment on "Holmes, not Semmelweis" (THE JOURNAL, April 11, 1914, p. 1177). A comparison of the dates of the writings of Holmes and Semmelweis arranged in parallel columns brings out graphically the truth of your statement. These lists of publications will be found on pages 434 and 435 of the volume on "Epoch-Making Contributions" referred to.

I should like also to mention an article by Dr. Richard Cole Newton on "A Brief Study of the Contribution of Ignaz Philipp Semmelweis to Modern Medicine" (*Med. Rec.*, New York, Sept. 10, 1910). Dr. Newton shows the gradual development in the mind of Semmelweis regarding the theory of the origin of puerperal fever. On page 10 Newton states that Semmelweis' intensive study of puerperal fever *began with* his appointment as assistant to the chair of obstetrics and as chief of the First Obstetrical Clinic in the Vienna General Hospital in 1846. This was *three years after* the publication of Holmes' paper on "The Contagiousness of Puerperal Fever" in the *New England Quarterly Journal of Medicine and Surgery*, Boston. Semmelweis did not publish his observations until several years later. C. N. B. CAMAC, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VITAMINS

To the Editor:—Please answer the following questions:

1. What are vitamins?
2. When and by whom were they discovered?
3. What is their scientific status and their relation to beriberi?
4. What literature is there on the subject?

G. H. J. PEARSON, London, Ont.

ANSWER.—1. "Vitamin" is the name given to a substance which is believed to be necessary to prevent the nervous lesions characteristic of beriberi. It is regarded as an antineuritic agent naturally present in rice, the removal of which by polishing causes the symptoms of the disease to appear. The name appears to be derived from vita, life and amin, indicating its chemical character. The substance was at first thought to be a pyrimidin base with the following formula: $C_{11}H_{20}O_7N_2$. It was at first believed to have the constitution of a ureid, but in his latest work Funk states that the nitrogen is not present in the amino form. Vitamin was first found in rice and was connected with beriberi. Other substances of similar character were subsequently discovered and the name has become descriptive of a class.

2. Vitamin was discovered in 1912 by Casimir Funk.

3. Up to the present the only vitamin that has been investigated chemically appears to be that of beriberi. Other vitamins are held by Funk to belong chemically to the same group. Vitamin exists in rice along with allantoin and cholin, but it is to vitamin that the physiologic action of the rice-polishings seems to be due. It has been shown that an exclusive diet of rice deprived of vitamin will cause in fowls a neuritis closely resembling beriberi, and that this artificial disease can be cured by the administration of vitamin.

4. Following are the contributions of Funk to the literature on vitamins:

Funk, Casimir: *Pharm. Jour.*, 1912, lxxxix, 351; *Brit. Med. Jour.*, 1912, ii, 787; *ibid.*, 1913, i, 814; *Biochem. Jour.*, vii, 211; *Jour. Physiol.*, 1913, xlvi, 173; *Lancet*, London, 1914, i, 98.

Funk, Casimir: Die Vitamine, ihre Bedeutung für Physiologie und Pathologie mit besonderer Berücksichtigung der Avitaminosen (Beriberi, Skorbut, Pellagra, Rachitis) Anhang: Die Wachstumssubstanz und das Krebsproblem, Wiesbaden, J. F. Bergmann, 1914.

RADIUM EMANATIONS

To the Editor:—I believe that it is time for the Council on Pharmacy and Chemistry to take up the status of radium emanations and to inform the medical profession, and through it the general public, whether or not radium emanations have a curative value, as claimed by some concerns who offer them for sale. I have looked up the subject and I found that according to Prof. Heinrich Willy Schmidt of Giessen, as quoted by Prof. J. Groebel of Nauheim, every spring water contains radium emanations in various amounts, but that these emanations, being in gaseous form, disappear very soon after the water leaves the ground and are entirely absent after a short time, even if the water is kept in hermetically sealed containers. If this is the case, then the sale of radium emanations is a humbug and a swindle and it is the duty of the Council on Pharmacy and Chemistry to enlighten the profession to this effect. At any rate it would be worth while to look into this matter and to make public the result of your investigations.

X. Y., Philadelphia.

ANSWER.—The Council has already taken up radium emanations. A discussion of radium and radium preparations appears in New and Nonofficial Remedies, 1914, pp. 221-225. In this discussion it is pointed out that radium emanations lose their strength rapidly and that in 3.85 days any quantity of the emanations will fall to half its initial activity owing to disintegration of the atoms. From this it is evident that waters whose radio-activity is due, not to radium itself but to radium emanations, will quickly lose their activity. As most radio-active waters do owe their activity to radium emanations, they must be used at the springs. Radium-containing waters were discussed in THE JOURNAL, Nov. 1, 1913, p. 1649, Sept. 20, 1913, p. 969, and March 21, 1914, p. 951.

YAWS IN THE UNITED STATES

To the Editor:—Please give me information as to the occurrence of yaws in the United States. Has it occurred in this country? If so, will you kindly give recent literature? I am familiar with the literature of the disease generally, but have been unable to find it in any text-books or systems of medicine published in this country. EDWARD J. WOOD, Wilmington, N. C.

ANSWER.—Cases of this disease have been reported from the Southern states, but never from the Northern states or from Canada. This is the opinion of Castellani and Chambers, as reported in *Tropical Medicine* for 1910. A similar statement is made in Shoemaker's "Diseases of the Skin," fourth edition, page 647.

ACTION OF WATER ON LEAD PIPES

To the Editor:—In this town there is a municipal water plant. Recently the authorities have made the requirement that all connections to water mains and to the property shall be of lead. Many pipes are from one to three hundred or more feet long. Is there danger of lead poisoning from this? Our water is very hard and heavily charged with mineral and earthy matter. Is this a usual requirement for persons using city water?

F. S. SMITH, M.D., Nevada, Ia.

ANSWER.—The ability of a natural water to take up lead depends largely on the oxygen and carbon dioxid content of the water. In general it may be said that soft waters and especially the acid waters from peaty swamps and marshes possess the most active lead-dissolving properties. Some hard waters, however, particularly those in which the hardness is of the kind known as "permanent," that is, due chiefly to sulphates and chlorids, may be quite plumbosolvent. Thresh (The Examination of Waters and Water-Supplies, Ed. 2, Philadelphia, P. Blakiston's Son & Co., 1913) recommends

testing the action of water on lead "by placing in it a piece of freshly scraped lead, 2 inches by ½ inch. The piece of lead is put at the bottom of a deep 100-c.c. cylinder containing 100 c.c. of the water and allowed to stand in the dark for twenty-four hours. The water and lead are then examined. Any turbidity or deposit indicates an erosive action, in which case the water must be filtered before testing to ascertain if any lead has entered into solution. Or half may be filtered and tested to ascertain the solvent action and the other half be acidified with acetic acid and the erosive effect determined."

One thing is certain, that wherever it is proposed to use lead water-service pipes the action of the water on lead should be carefully determined.

THERMOPRECIPITIN REACTION IN DIAGNOSIS OF PULMONARY TUBERCULOSIS

To the Editor:—In THE JOURNAL, April 11, 1914, p. 1202, appears an abstract mentioning the thermoprecipitin reaction in the diagnosis of pulmonary tuberculosis. Please describe this reaction.

SUBSCRIBER.

ANSWER.—This reaction was first described by Fagiuoli (*München. med. Wchnschr.*, 1913, p. 1480). It is based on Ascoli's reaction in the diagnosis of anthrax in animals. Fagiuoli's instructions for carrying out the test were: To a certain quantity of sputum (from 5 to 10 c.c.) double the quantity of chloroform is added. The mixture is well stirred up, and put in the incubator at 37 C. (98.6 F.) for from three to four hours. The chloroform is then decanted, and replaced by the same amount of normal saline solution. After two or three minutes of vigorous shaking, a homogeneous emulsion of a white, milky appearance is obtained. This is filtered through a Schleicher und Schull paper No. 490. If the filtrate is cloudy or even slightly opalescent, the filtration is repeated through asbestos. The experiment is carried out in small test-tubes (2.5 by 0.1 cm.). The tube is filled to about half with precipitating serum and then carefully, with a capillary pipet, a few drops of the sputum extract are run on the surface. The contact must not be quick or vigorous. The tubes are put for from twenty to thirty minutes into the incubator at 37 C., and the result is then read off. The result is regarded as positive if during the thirty minutes after the test is put up a white precipitation ring appears at the junction zone.

LITERATURE ON RELATION OF DISEASE AND CRIME

To the Editor:—Please give me late references to books or current literature on the relation of disease to crime, and on crime as a disease.

ARTHUR F. FISCHER, M.D., Hancock, Mich.

ANSWER.—The following is a list of recent articles on these subjects:

Anderson, C. H.: Are Criminals Insane Individuals? Bowers, P. E.: Constitutional Immorality; Sleyster, R.: Some Data Gathered in a Study of 269 Murderers, and Hill, G. M.: Ways and Means of Preventing Physical, Mental and Moral Degeneracy, *Illinois Med. Jour.*, April, 1914.

Kohler, F.: Psychopathologie der Tuberkulose und ihre kriminelle Bedeutung, *Ztschr. f. Tuberk.*, 1909-1910, xv, 31.

Bowers, P. E.: Causes of Crime, *New York Med. Jour.*, July 19, 1913.

Sneve, H.: Influence of Parental Diseases, Habits and Heredity on Juvenile Crime, *Bull. Am. Acad. Med.*, October, 1913.

The Criminal Class and the So-Called Criminal Type, editorial, THE JOURNAL, Jan. 21, 1911, p. 201.

Noble, C. P.: The Law of Degeneracy in Its Relation to Medicine, *New York Med. Jour.*, Dec. 24, 1910.

Fry, D. R.: Pathologic Condition of Nose, Throat and Ears as Etiologic Factors in Degeneracy, *Ohio State Med. Jour.*, September, 1910.

Hughes, M. R.: Recurrent Insanity and the Stigmata of Degeneracy, *Med. Fortnightly*, November, 1910.

Lombroso, Cesare: Crime: Its Causes and Remedies, Boston, Little, Brown & Co., $4.50.

STATES RECIPROCATING WITH KENTUCKY

To the Editor:—Please give full particulars regarding reciprocity in Kentucky.

J. L. S.

ANSWER.—Reciprocal relations on the basis of a written examination only have been arranged by Kentucky with Colorado, Delaware, District of Columbia, Illinois, Louisiana, Minnesota, New Hampshire, New Jersey, North Dakota, Texas and Virginia, and such relations on the basis either of an examination or of a diploma from a reputable medical college (without examination), if the diploma and license were granted prior to Sept. 1, 1907, have been arranged by Kentucky with Arkansas, Georgia, Indiana, Iowa, Kansas, Maine, Maryland, Michigan, Missouri, Nebraska, Nevada, Ohio, Oklahoma, South Carolina, Tennessee, Utah, Vermont, West Virginia and Wisconsin. For at least one year the applicant must have been a member of his county and state societies and the national association of the system of medicine with which he affiliates, and must be recommended as worthy of reciprocity at a stated meeting of the medical society in which his membership originated.

JOURNALS ON ROENTGENOLOGY

To the Editor:—Please supply me with a list of the best English, French and German magazines on Roentgen-ray therapy and roentgenography.

JAMES A. JACKSON, JR., M.D., Madison, Wis.

To the Editor:—Will you kindly give me the name of some of the journals devoted exclusively to Roentgen-ray work?

JAMES N. MCCOY, M.D., Vincennes, Ind.

ANSWER.—The following is a list of journals on roentgenology in various languages, together with their publishers and price of publications.

American Journal of Roentgenology, 32 West Adams Street, Detroit, $5.

Archives of Roentgen Ray, Rebman Company, New York City, $4.50.

Fortschritte auf dem Gebiete der Roentgenstrahlen, Hamburg, L. Gräfe & Gillem, 30 marks.

Strahlentherapie, Berlin, Urban & Schwarzenberg, Price varies.

Archives d'électricité médicale, expérimentales et cliniques, Bordeaux, $5.

Zentralblatt für Röntgenstrahlen, Radium und verwandte Gebiete, Wiesbaden, Bergmann, 20 marks.

Zeitschrift für Röntgenkunde und Radiumforschung, Leipsic, Krause, 20 marks.

ARTICLES ON URTICARIA

To the Editor:—Please refer me to recent contributions on chronic urticaria. It is common here in the tropics, but I have a case in which it recurs only on the parts exposed to the sun, following a moderate sunburn. It might be called dermatitis solaris, but distinct urticarial lesions in other parts of the body preceded this manifestation. One physician suggested a careful use of the Roentgen ray, but I am doubtful about trying it.

H. P. NOTTAGE, M.D., Honolulu, H. I.

ANSWER.—The following is a list of articles on this subject:

Ochs, B. F.: Urticaria Caused by the Sun's Rays, *Med. Rec.*, July 30, 1910.

Vorarer: Urtica Solitaria, *Dermatol. Ztschr.*, January, 1913.

Ravitch, M. L.: Thyroid as Factor in Chronic Urticaria, *Jour. Cutan. Dis.*, November, 1907.

Jacob, F. H.: Care of Urticaria Pigmentosa Treated with Roentgen Ray, *Brit. Med. Jour.*, June 1, 1907.

STATISTICS ON MEDICAL EDUCATION

To the Editor:—Please answer the following questions:

1. How many medical colleges are there in the United States?
2. How many physicians are there in the United States?
3. How many students graduated in medicine in the United States each year from 1901 till the present year?

LEO RICEN, M.D., Portland, Ore.

ANSWER.—1. 106.

2. 142,000.

3. 1901, 5,444; 1902, 5,009; 1903, 5,698; 1904, 5,747; 1905, 5,600; 1906, 5,364; 1907, 4,980; 1908, 4,741; 1909, 4,515; 1910, 4,440; 1911, 4,273; 1912, 4,483; 1913, 3,981.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

PRIVILEGED COMMUNICATIONS

Inquiries are frequently received regarding the law on privileged communications and the right of physicians and patients to regard professional communications as privileged in the legal sense. This subject is interesting and important, from both the legal and medical points of view. In order to place the facts before our readers, our Medicolegal Bureau has prepared the following as a summary of the existing condition of legislation on this subject, as well as an argument on the abstract question from a legal point of view.

The term "privileged communication," as used in the law of evidence, has reference to the confidential relationship of physician and patient, lawyer and client, priest and penitent. The idea has prevailed among physicians that each of these three

relations has a peculiar privilege. In the eyes of the law this is not the case. An examination of the authorities shows that this right of privilege did not exist at common law for the physician, but only for the lawyer, and possibly for the priest.[1] Furthermore, in this country the physician was not vested with the right of privilege until 1828, when New York enacted the first statute. Subsequently, many states adopted measures, so that to-day more than half of them have legislated this doctrine into law.[2]

At present, twenty-eight states have statutes providing in some form for privileged communication to physicians. These states are: Arizona, Arkansas, California, Idaho, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Utah, Washington, West Virginia, Wyoming, Wisconsin and the District of Columbia. Alaska and Hawaii have similar legislation.

The remaining states, twenty-one in number, have no such law. Massachusetts has recently rejected such a law.[3]

Professional privileges are of statutory origin. The purpose is to protect communications made to physicians in their professional capacity. The limit of this protection, however, varies not a little in the different states. In several states the law applies only in civil actions. It is generally required that the privileged matter shall be "information" and often of a "confidential nature," acquired "while attending in a professional capacity," or such as is necessary to "treat the patient" or the like. In Pennsylvania the law is limited to that which tends to blacken the character of the patient. In West Virginia the law permits a physician to testify if he is sued for causing a death by a wrongful act, neglect or default, but only as to the medicine or treatment given the deceased. The proposed criminal code of Louisiana for 1910 provided that no physician could disclose a communication of a patient, either preceding or after the termination of his employment, unless the patient waived his right of privilege. The law also excepted physicians appointed by the court to make physical examinations.

These laws have been given varied constructions by the several jurisdictions. In New York there have been many objections raised. That the criticisms were not altogether without foundation is evidenced by the fact that the statute of that state was amended in 1891, 1892, 1899 and 1904. These amendments and those of other states have all tended to liberalize the laws and at the same time to pay due regard to the right of privacy which the public is supposed to desire in relations with physicians.

Because of the varying provisions of the law in different states, it is important that physicians do not take too much for granted, but that they secure legal advice, especially as to the law in their respective states. The bill recently defeated in Massachusetts is based on the New York law. It is of interest as the latest effort to formulate a law on this question.

Following is a draft of the Massachusetts bill, which is entitled "Physicians or Professional Registered Nurses not to Disclose Professional Information": A person duly authorized to practice physic or surgery, or a professional or registered nurse, shall not be allowed to disclose any information which he acquired in attending a patient in a professional capacity, and which was necessary to enable him to act in that capacity; unless, where the patient is a child under the age of 16, the information so acquired indicated that the patient has been the victim or subject of a crime, in which case the physician or nurses may be required to testify fully in relation thereto on any examination, trial or other proceeding in which the commission of such crime is a subject of injury."

1. Wigmore: Evidence, iv, Par. 2380 et seq. See also Lord Chief Justice Mansfield in Duchess of Kingston's Trial, Howard State Trials, 1776, xx, 573.

2. Wigmore: Evidence, iv, Par. 2380 et seq. See particularly footnote thereunder citing statutes; also session law to date elsewhere. Also Commissioners' Revision of the Statutes of New York, 1836, iii, 737.

3. Medical Legislation: Disclosure of Professional Information, editorial, Boston Med. and Surg. Jour., Feb. 26, 1914, p. 326. Boston, Charles A.: In Witthaus and Becker, Medical Jurisprudence, p. 99.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, May 12. Sec., Dr. W. S. Stewart, Suite 404 Citizens Bk. Bldg., Pine Bluff. Homeopathic: Little Rock, May 12. Sec., Dr. I. J. Brooks, 219 East 10th St., Little Rock. Eclectic: Little Rock, May 12. Sec., Dr. C. E. Laws, Ft. Smith.

GEORGIA: Atlanta and Augusta, June 3. Sec., Dr. C. T. Nolan, Marietta.

ILLINOIS: Coliseum Annex, Chicago, May 12-14. Sec., Mr. Amos Sawyer, Springfield.

KENTUCKY: Louisville, June 3-5. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, June 4-6. Sec., Dr. E. L. Leckert, Macheca Bldg., New Orleans. Homeopathic Board: New Orleans, May 4. Sec., Dr. Edward Harper, 702 Macheca Bldg., New Orleans.

MASSACHUSETTS: Boston, May 12-14. Sec., Dr. Walter P. Bowers, Room 159, State House, Boston.

NEBRASKA: Lincoln, May 27. Sec., Dr. H. B. Cummins, Seward.

NEVADA: Carson City, May 4. Sec., Dr. Simeon L. Lee, Carson.

NEW YORK: May 19-22 Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

OHIO: Columbus, June 2-5. Sec., Dr. George H. Matson, State House, Columbus.

PENNSYLVANIA: Philadelphia, June 1-3. Sec., Dr. Nathan C. Schaeffer, Harrisburg.

TENNESSEE: Memphis, Nashville and Knoxville, first week in May. Sec., Dr. A. B. DeLoach, Memphis.

Pennsylvania Board Announcements

At a recent meeting of the Bureau of Medical Education and Licensure of Pennsylvania the secretary of the bureau was instructed to call the attention of medical schools to the requirement in the practice act that applicants for licensure must have had a general education of not less than a standard four-year high-school course or its equivalent and, "in addition, not less than one year of college credits in chemistry, biology and physics, all of which have been received before admission to medical study," and that every applicant for admission to the first year of the medical course in the colleges of Pennsylvania must have from the Bureau of Professional Education a certificte specifying that he or she has met these requirements of preliminary education. The bureau also adopted plans for licensing drugless healers and chiropodists, and withdrew recognition from the Bennett Medical College of Chicago.

Non-Recognition of Low-Grade Colleges

A report from Dr. C. T. Nolan, secretary of the State Board of Medical Examiners of Georgia, states that at a recent meeting of that board a resolution was adopted that hereafter graduates of medical colleges rated in Class C by the Council on Medical Education of the American Medical Association would not be admitted to examinations conducted by that board.

There are now thirty state licensing boards which as a rule do not give full recognition to colleges rated in Class C. These states are:

Alabama	Maryland (Reg.)	Oklahoma
Arkansas (Reg.)	Michigan	Pennsylvania
Colorado	Minnesota	Porto Rico
Connecticut (Reg.)	Mississippi	Rhode Island
Delaware	New Hampshire	South Carolina
Georgia	New Jersey	Texas
Indiana	New Mexico	Vermont
Iowa	New York	Virginia
Kentucky	North Dakota	West Virginia
Louisiana (Reg.)	Ohio	Wisconsin

Alabama January Report

Dr. W. H. Sanders, secretary of the Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, Jan. 13-16, 1914. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 67, of whom 40 passed and 24 failed, two withdrew and one was expelled. The following colleges were represented:

College	PASSED	Year Grad	Per Cent
Birmingham Medical College (1912)	5, 82; (1913) 78, 80, 81, 81, 82.		
University of Alabama (1909) 75; (1912) 75; (1913) 76, 77, 77, 78, 78, 80, 81, 81, 83, 83, 84, 87.			

Howard University .....(1905) 78; (1913) 76
Atlanta College of Physicians and Surgeons .....(1913) 76
Atlanta School of Medicine .....(1908) 82
Chicago College of Med. and Surg. (1912) 76; (1913) 81
College of Physicians and Surgeons, Chicago..... (1895) 83
State University of Iowa, Coll. of Homeo. Med. (1881) 78
Tulane University (1911) 76; (1912) 86; (1913) 75, 80, 86.
Johns Hopkins University .....(1913) 86
University of Michigan, Dept. of M. & S.....(1913) 78
Jefferson Medical College.....(1911) 83
Meharry Medical College.....(1913) 80
Memphis Hospital Medical College.....(1912) 75
University of Nashville .....(1908) 87

FAILED

Birmingham Medical College (1912) 73; (1913) 59, 60, 63, 69, 69, 69, 72*.
University of Alabama .....(1909) 73; (1912) 53
Atlanta College of Physicians and Surgeons (1912) 59; (1913) 57, 72.
Atlanta School of Medicine.....(1910) 55; (1912) †
University of Georgia .....(1912) †
Bennett Medical College .....(1913) 70
Meharry Medical College .....(1913) 72
Memphis Hospital Medical College (1913) 43, 45, 48, 57, 57, 59.
University of Tennessee .....(1913) 66, 71

* No grade given.
† Withdrew.

The following questions were asked:

ANATOMY

(For Recent Graduates)

1. Describe the upper third of the femur. 2. Describe the thyroid gland, including its blood-supply. 3. Give origin and termination of the internal jugular vein. 4. Describe Poupart's and Gimbernat's ligaments. 5. Locate and describe the gall-bladder. 6. Name the structures divided in an amputation 4 inches below the knee. 7. Name and describe the membranes which surround the spinal cord. 8. Give the origin, course and distribution of the sciatic nerve. 9. Trace the fetal circulation. 10. Describe the inguinal canal.

ANATOMY

(For Graduates of Five Years or More)

1. Name the bones forming the skull. 2. Indicate on the anterior chest wall the locations beneath which the valves of the heart are found. 3. Name the regions of the abdomen. What is found in the right hypochondriac region? 4. Name the muscles forming the gluteal group, giving their relations to each other. 5. Name the contents of Scarpa's triangle, giving their relations to each other. 6. Name the tissues that are divided in an operation for inguinal hernia. 7. Trace the arterial blood from the heart to the fingers. 8. Where is the tendo Achillis and what forms it? 9. Name the coverings of the brain. 10. Where does the abdominal aorta divide? Name its subdivisions.

CHEMISTRY

(For Recent Graduates)

1. Write out the formula of a compound containing three elements and explain in detail. 2. What are the differences between an element and a compound? Give three examples of each, with formulas or symbols. 3. Describe how pure oxygen, to be used for inhalation, may be prepared. What impurities may oxygen contain? 4. Name the halogens. Give symbols and name a solvent for each. 5. Describe a test for free hydrochloric acid in gastric contents. 6. Describe the chemical changes occurring during the digestion of proteins. 7. How may the presence of lead in water be detected? 8. Define the term "catalysis" and the term "hemolysis" 9. Name four important compounds obtained directly, or indirectly by synthesis, from the products of the destructive distillation of coal. 10. Describe acetic acid; give formula, physical and chemical properties. What class of salt does it yield and how may they be detected?

CHEMISTRY

(For Graduates of Five Years or More)

1. Give physical and chemical properties of oxygen. 2. Give physical and chemical properties and physiologic action of carbon dioxid. 3. What is meant by "reaction to litmus"? Name some practical applications of the reaction to the uses of the clinician. 4. Name the alkali metals. 5. Name at least one solvent for each of the following: *(a)* citrate of potassium; *(b)* calcium phosphate; *(c)* phosphorus; *(d)* camphor. 6. Name a chemical antidote for each of the following: *(a)* corrosive sublimate; *(b)* arsenic; *(c)* oxalic acid. 7. What poisonous gases are contained in illuminating-gas? 8. Describe the fermentation test for sugar. 9. Describe a test for bile in urine. 10. How may morphin and quinin be distinguished?

PHYSIOLOGY

(For Recent Graduates)

1. Discuss muscular fatigue—causes, effects and resulting phenomena. 2. Discuss the peritoneum, with special reference to its function. 3. Discuss the formation of lymph and the factors controlling its flow. 4. Discuss the regeneration of the blood after a severe hemorrhage. 5. Discuss the physical and chemical changes in the blood and air through respiration. 6. Discuss vomiting and its causes. 7. Discuss the mechanism by which the blood-pressure is controlled. What is the approximate adult blood-pressure? 8. How is the automatic action of the heart-muscle supposed to be maintained? 9. Of what does an animal cell consist? Discuss its functions. 10. What is the function of the kidney?

PHYSIOLOGY

(For Graduates of Five Years or More)

1. Discuss the physiologic action of the bile. 2. Discuss the physiologic processes by which liquids are eliminated from the body. 3. What is the normal relation of pulse-rate to respiration? 4. What is the proportion of blood to body-weight? How much blood can be suddenly lost without fatal results? 5. What effect has high temperature on the force and frequency of the heart-beats? 6. What effect has loss of elasticity in the walls of the blood-vessels on the circulation of the blood? 7. Discuss the conveyance of oxygen to body tissues. 8. What is the function of the eustachian tubes, and what disturbances follow their occlusion? 9. Discuss knee-jerk. 10. State principal difference between voluntary and involuntary muscles.

ETIOLOGY, PATHOLOGY, SYMPTOMATOLOGY AND DIAGNOSIS OF DISEASES

1. Give the etiology of endocarditis. 2. Give the etiology of ileocolitis. 3. Give the pathology of lobar pneumonia. 4. Give the pathology of acute gastritis. 5. Give the pathology of chronic interstitial nephritis. 6. Give the symptomatology of appendicitis. 7. Give the symptomatology of cirrhosis of the liver. 8. Give the symptomatology and diagnosis of diphtheria. 9. Give the diagnosis of small-pox. 10. Give the differential diagnosis between tuberculosis and typhoid fever.

PHYSICAL DIAGNOSIS

1. What significant signs may be observed in an inspection of the neck? 2. Give the physical signs of pneumothorax on one side and the reasons therefor. 3. Give the physical signs of lobar pneumonia in the second stage and the reasons therefor. 4. Give the physical signs of recent occlusion of a primary bronchus and the reasons for the same. 5. Give the physical signs of mitral insufficiency of regurgitation and the reasons for the same. 6. Give the physical signs of acute dilatation of the right side of the heart and the reasons for the same. 7. Give the physical signs and the laboratory findings in cancer of the stomach near the pylorus, with considerable obstruction. 8. Give the method of examination and the physical signs of movable kidney. 9. Give the physical signs of a considerably distended gall-bladder. 10. Give the physical signs of exophthalmic goiter.

SURGERY

1. Describe, in a general way, the preparation of a patient for surgical operation. 2. Name the different kinds of suture material and discuss their relative merits. 3. Describe an indolent ulcer of the leg and give the treatment. 4. Differentiate between tetanus and strychnin poisoning and discuss the treatment of tetanus. 5. Give the classification of tumors. 6. Give diagnosis and treatment of fracture of clavicle. 7. Give diagnosis and treatment of subcoracoid dislocation of head of humerus. 8. Give diagnosis and treatment of floating kidney. 9. Give usual causes of peritonitis. 10. Give diagnosis and treatment of ulcer of the duodenum.

OBSTETRICS AND OBSTETRIC OPERATIONS

1. What should be learned on the first visit to, and in the first examination of, a case of labor? 2. What can be determined by external palpation of the pregnant woman at the eighth month, and how should it be performed? 3. What is placenta praevia, and how should it be treated? 4. What is version, and how many kinds are there? 5. When a child is apparently still-born what are the methods of resuscitation? 6. Should the head in a case of labor fail to engage in the pelvic brim, how would you manage? 7. How soon after the completion of the second stage of labor should the umbilical cord be ligated, how would you dress it, and what are the dangers of improper dressing? 8. Discuss in general the principal drugs used to hasten labor. 9. What conditions demand version? What, forceps delivery? What, cesarean section? 10. Describe the operation of cesarean section.

GYNECOLOGY

1. Give the findings on examination in chronic salpingitis, and state from what condition it must be differentiated. 2. What pathologic lesions occur in the cervix uteri? 3. Make diagnosis of beginning cancer of the cervix uteri. 4. Give causes and treatment of subinvolution of the uterus. 5. Give treatment of backward displacement of the uterus. 6. Name the neoplasms of the ovary. 7. What reflex symptoms may follow pelvic lesions? Give explanation. 8. Give definition and etiology of metrorrhagia. 9. Give etiology and symptoms of pelvic hematocele. 10. Give treatment of urethral caruncle.

HYGIENE AND MEDICAL JURISPRUDENCE

1. Give the hygienic management of acute lobar pneumonia. 2. Give the hygienic management of whooping-cough. 3. What are disinfectants? Deodorants? Germicides? 4. How would you proceed to prevent or overcome malaria in a given district? 5. Describe briefly the proper mode of disinfecting and cleaning a room which has been occupied by a patient suffering from a dangerous communicable disease. 6. What symptoms and conditions would indicate that a sufferer from diphtheria was still infective? How may it be shown that the infective period of such patient has passed? 7. Into what general classes are foods divided? Give examples of each. 8. Define malpractice. 9. Name conditions that would legally justify induction of premature labor. 10. What is coma? Give three causes of coma.

DISEASES OF THE EYE, EAR, NOSE AND THROAT

1. Name the two principal muscles of the eyelids, and explain their action. 2. What kind of tissue lines the posterior surface of the eyelids, and what is it called? Name three of its important diseases and write prescriptions therefor. 3. Give the stages, dangers and general principles of management of ulcer of the cornea. 4. Give the symptoms, dangers and management of acute iritis. 5. Give the symptoms of obstruction of the nasal duct of considerable standing, and the method of management. 6. Mention the symptoms that would indicate the operation of inflating the middle ear, and give two methods of doing it. 7. How would you examine the hearing of a person, and how would you differentiate between a case of deafness that could very probably be relieved and one that could not be? 8. Give the diagnosis, dangers and treatment of acute tonsillitis. 9. Mention the symptoms that would create a suspicion of a foreign body in the larynx, and give the method of definitely determining the matter. Give also the methods of removal of foreign bodies from the larynx. 10. Differentiate between an acute laryngitis of severe type and a laryngeal diphtheria. Give briefly the management of each.

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Book Notices

THE INTERVERTEBRAL FORAMEN: AN ATLAS AND HISTOLOGIC DESCRIPTION OF AN INTERVERTEBRAL FORAMEN AND ITS ADJACENT PARTS. By Harold Swanberg, with an Introductory Note by Prof Harris E. Santee. Cloth. Price $3. Pp. 101, with 18 illustrations. Chicago: Chicago Scientific Publishing Co., 1914.

During the last decade several so-called "schools of medicine" have arisen, based on the assumption that disease, instead of being a specific result of definite causes, is simply a manifestation in different parts of the body of interference with the nerve-supply due to pressure on the spinal nerves at their point of exit from the spinal canal. This is one of the dogmas of the osteopath, although his conception of the human body as a machine admits of various other "lesions" in the form of dislocations of muscles, tendons and even blood-vessels. Several of the latter-day cults, however, are based entirely on the theory that pressure on the spinal nerves is responsible for all imaginable ills. Such a cause being admitted, the treatment is easy—simply remove the pressure. Unfortunately for these faddists, however, the demonstration of their major premise involves a large amount of careful scientific research which they have never undertaken, since they are of the type of mind which is unable to distinguish between a hypothesis and a demonstrated fact. What the advocates of these various cults have shirked doing, however, has been taken up by Mr. Swanberg, who has made a careful study of the minute anatomy of the intervertebral foramina and the exact relations of the spinal nerves to them. Mr. Swanberg's book is illustrated with sixteen plates made from actual dissections. The findings, while interesting to the anatomist, are principally important, as stated by Dr. Santee in the introduction, because this field, though limited, "is sufficiently broad to form the anatomic basis for several schools of practice." The author's findings are that the spinal nerves are entirely surrounded at their exit from the canal by fatty-fibrous tissue and that this tissue serves to protect the nerve from pressure. Summing up his observations, he says, "I have seen many ankylosed specimens where the intervertebral foramina have been greatly reduced in size, but in every instance there seemed enough room for the nerve to pass free from any bony pressure. Possibly in some such cases [changes in the intervertebral disks or cartilages] the nerve may be subject to actual bony pressure, but from my observances this occurrence is extremely rare. . . . Nature seems to use every possible precaution to protect them [the spinal nerves] from bony pressure. This is the reason, no doubt, that the intervertebral foramina, in both animal and man, are so much larger than the nerves themselves."

The various cults based on the theory of spinal manipulation as a cure for disease have never had any positive evidence on which to base their belief. Mr. Swanberg's book deprives them of even negative evidence.

ANNUAL REPORT OF THE BUREAU OF HEALTH FOR THE PHILIPPINE ISLANDS. Paper. 1913.

In his annual report for 1913, Dr. Victor G. Heiser, director of health in the Philippines, interestingly sets forth the results of the year's work. Heiser calls attention to the numerous and varied activities of the department, which concern many more subjects than health department activities in the states. The field includes not only those responsibilities usually imposed on health organizations such as the collection and compilation of vital statistics and the protection of the public from dangerous communicable diseases, but also the distribution of public charities, the care of the insane, orphans and the aged, the administration of general and special hospitals, the hygienic and medical care of civilian employees, the administration of the Food and Drugs Act, investigation of the water-supply, plumbing and building ordinances, making physical examinations for entrance into public service, and many other duties. The report takes up briefly practically all of these subjects, giving their present status both in textual and in tabular form. As a whole, the report shows that health conditions in the Philippines are most satisfactory. No great epidemics occurred during the year. There were a few small outbreaks of bubonic plague which were quickly controlled, and owing to the very thorough supervision of the health department, cholera was entirely absent. Small-pox occurred only in a few persons arriving in the islands from the outside.

Among the topics of great interest discussed in the report are beriberi, leprosy and the care of the insane. By animal experimentation and by practical application in the bodies of considerable numbers of human beings, both in the Philippine Islands and in the Straits Settlements, Heiser says that it has been absolutely demonstrated that beriberi depends on the use of polished rice as the chief or sole diet, and that the use of unpolished rice will always clear up these cases unless in a too advanced stage. Of interest in this connection is the hypothesis, not yet proved, that taon, a disease in infants which is responsible for a large portion of the 50 per cent. of deaths under 1 year, is due to beriberi in the mothers. Further studies are being carried on to determine this point.

As to leprosy, the report says that all forms of treatment that have been suggested have been tried. The mixture of chaulmoogra oil with resorcin offers at least some slight promise, and two patients are reported as having recovered under this treatment and remained well for more than two years. Others have been benefited, but in many cases there has been no improvement.

Heiser believes that the conditions in the Philippines with reference to the care of the insane are not at all what they should be, and improvements will have to be made in this respect. The proportion of the insane, however, among the Filipinos is not so great as among the population of the United States.

While excellent work is being done by the health and sanitary authorities in the Philippines in all departments, the director says, there is general need for larger appropriations in order to maintain the standard which has been attained. The report is an excellent one and significant of the results which can be achieved anywhere as well as in Panama or the Philippine Islands, by strict and sane sanitary supervision.

THE ADMINISTRATIVE CONTROL OF SMALL-POX. How to Prevent or Stop an Outbreak. By W. McC. Wanklyn, B.A., M.R.C.S., L.R.C.P. Cloth. Price, $1.10 net. Pp. 86. New York: Longmans, Green & Co., 1913.

This volume is a companion to the book "How to Diagnose Small-Pox," by the same author, and is intended as a contribution toward the prevention of that disease. It is prepared primarily for postgraduate students working for the diploma on public health given by the English universities. After discussing the natural history of small-pox and the mode of its development, the details of administration with which the modern health officer should be familiar are then taken up. The author puts the case in graphic form. "A certificate of a case of small-pox lies in front of you on your table. The question is in point of fact and detail, what are you going to do? If you are a responsible medical officer of health, that is a question that you must answer. If you are going to succeed, you have to be ready with the answer, to act instantly and to overlook nothing." Dr. Wanklyn outlines three main indications: to ascertain the exact extent of the existing condition and how it originated, to eradicate what already exists and to prevent further cases developing. These indications are discussed at length, but always definitely and clearly. Dr. Wanklyn's book is an excellent illustration of the methods of modern public health work. The competent health officer of to-day no longer wastes his time in generalities. So far as our present knowledge of preventive diseases will permit him when the emergency arises, he acts promptly, vigorously and definitely. Dr. Wanklyn's book is a material contribution to this particular problem.

An Overdose.—A drug does not effect its purpose if the dose is too large, and it is the same with censure and adverse criticism when it exceeds the measure of justice.—Schopenhauer.

Miscellany

Report of New York Milk Committee for 1913

In its report the New York Milk Committee presents figures showing what has been accomplished in New York City in the way of baby saving. Both its work and that of the various public and private agencies working in connection with it during the seven years of its existence are included. It is asserted that 950,000 babies were born during that period, 109,000 of whom died. If the rate of mortality for the five-year period previous to the formation of the committee had prevailed, the deaths would have been 150,000. There was thus an actual saving of 41,000 infants. If the death-rate among infants for 1913 had prevailed throughout the seven-year period, the actual deaths would have amounted to 96,000. It is therefore asserted that the improved infant death-rate of New York can no longer be attributed to favorable weather conditions or to chance, but must be credited to the activities of all the agencies working along the line of infant welfare based on a program of clean and safe milk, systematic education of mothers in matters of feeding, hygiene and sanitation, etc. It is along these two main lines—the improvement of the milk-supply and the education of parents—that the committee has been working. The work of the National Commission on Milk Standards, created by the New York Milk Committee, has been endorsed by national scientific and business associations having to do with milk and the milk industry, and its reports have been published by the United States Public Health Service and its regulations endorsed by health authorities in many communities. The report sets forth many details of the work of the committee by chart and text. One of the directions in which the work of an educational character has expanded is in the support and cooperation given to baby contests, a number of which were held in New York during the year. This, it is believed, is a valuable means of educating communities in the better care and rearing of children and will do much to aid in the reduction of infant mortality. Instruction in prenatal care and the development of milk stations and health centers are also directions in which much of the valuable work of the committee has been done. Statistics of infant mortality in over 120 cities of the United States have been collected and are set forth in a table covering the years from 1906 through 1913. The New York committee sets the standard for infant-welfare work, for it is shown that the infant-mortality rate is lower in that city than in any other of the ten largest cities of the country, and for 1913 has been improved over the low figures for 1912.

Butter Quality

Work carried out recently in Boston by Rosenau, Frost and Bryant (*Jour. Med. Research*, 1914, xxx, 69), possesses great practical importance as it deals with a commodity of daily use. While much attention has been paid recently to milk as a carrier of bacteria which might produce infection, comparatively few examinations have been made of butter. Twenty-five samples were studied, each being scored and then examined chemically and bacteriologically. The samples were carefully selected to represent the average kind of butter found in the Boston market, and care was taken to select those representing distinct supplies. They originated either from New England or Wisconsin and Minnesota creameries. Scoring is done on a system of points: flavor 45, grain or body 25, color 15, salt 10 and packing style 5. Almost without exception the butters received a high score, the principal deductions being made under the heads of flavor and salt. In most cases the authorities were unable to determine the age of the butter, but whenever it was known it was indicated. The price varied from 33 to 70 cents per pound. No definite relation between score and price was evident. In general, none of the samples was found to contain less fat or more moisture than allowed by law, and no harmful adulteration was discovered. A few samples contained coloring-matter of vegetable origin, but none contained azo dyes. Three of the samples examined were unsalted and none of the remainder contained an excessive amount of salt. Four of the twenty-five samples were made from pasteurized cream.

The general sanitary condition of the butter was difficult to determine because of the lack of a practical dirt test. No such test has as yet been devised, and its need was most apparent in this series of examinations.

Of greatest importance were the findings of the bacteriologic tests. The average number of bacteria for the twenty-five samples was 5,700,000, the lowest 8,600 and the highest 41,000,000. No particular relation apparently exists between the number of bacteria and any other constituent determined, such as salt, reaction, moisture, etc., but the number of bacteria diminishes markedly with age. It is suggested that the bacteria, therefore, may be used as an indication to the age of the butter. *Bacillus coli* was found in only six of the twenty-five samples, and from a few special experiments it would seem that this bacillus dies out very soon in butter. Streptococci were found in fourteen of twenty-five samples. The anaerobic *Bacillus welchii*, although found frequently in milk, was not found in any of the butter.

Tubercle bacilli were present in two of twenty one samples tested for this micro-organism; the four samples made from pasteurized cream were not tested for it. The authorities state that there can be no objection to pasteurizing cream intended for butter; such butter, however, should not be labeled "pasteurized butter," but "butter made from pasteurized cream." It so happened that the samples which contained tubercle bacilli were purchased from a single purveyor in Boston, and were a high-priced butter with a high score, but contained, nevertheless, in addition to tubercle bacilli, a large per cent. of bacteria per gram and streptococci. It would seem, then, that price is not a guarantee of safety. The authorities conclude that all cream intended for butter should be pasteurized.

Such work as this, it may again be stated, is of the greatest practical importance. It is a check on the manufacturers of such common products and is a stimulus to continued endeavor in the production of high-class and safe food materials.

Patent Medicine

This is the time of the year that the patent medicine quack gets in his best work. I know that you do not use it, but there are people whom you can influence who do. Tell them that the doctor, who knows what is in these concoctions, would not give them to his family, that the chemist wonders how any one can trifle with his own health, and even the manufacturers of it whom I have known take the attitude, when reproached for selling it, of, "Well, there are folks who will take some kind of stuff from a bottle. I might as well be the one to profit by their ignorance as any one else."

Less than a week ago a friend of mine admired the home of a man whose money was made through one of the "female" (how I dislike that word!) remedies advertised at every country store. He laughed and replied, "Yes, it was built of woman's health." "Woman's health, your grandmother!" she ejaculated, "it was woman's credulity." "Oh, well, if you like to put it that way," he said, "they think they got the health, I know I got the house."—*Progressive Farmer*, Raleigh, N. C.

Old Doc Gallinger

Senator Gallinger is rounding out his last term in the Senate. His distinguished career is drawing to a close. His latest triumph is his nation-wide campaign against vivisection. He proposes an investigation by the Public Health Service into the rumors that the doctors in New York hospitals use children instead of animals for experiments with serums. If Gallinger were a typical American, we should not be swift in condemning Russia for her excitement about "ritual murder." Senator Gallinger has already decided in his own mind "that a prima-facie case has been made out against some practitioners." Senator Gallinger proclaims the glad tidings that he is himself a physician. In truth, after an academic education that would not now admit him to any medical college of the first rank, he attended an "Eclectic

Medical Institute" in Cincinnati in 1858, and achieved the degree of M.D. ten years later from the New York Homeopathic Medical College. After he had practiced medicine in Concord, N.H., for ten years, politics claimed him as its own. He opposes anything endorsed by the American Medical Association, like the Owen bill for a Department of Health, and the Children's Bureau with its inquiry into infant mortality. Nobody takes Senator Gallinger seriously as a senator. Why not let him strut about as an authority on medical subjects?—*Harper's Weekly.*

Tropical Areas Free from Malaria

Notwithstanding the almost universal presence of mosquitoes in tropical countries, certain areas have been found to be free from malaria, even when the anophelines are found. Major Brooke of the United States Army, in an article in the *Military Surgeon* of March, 1914, reports that Cebu in the Philippines is free from malaria although the anopheline mosquito has been found in Cebu and it is surrounded by the zones in which malaria is epidemic. Major Brooke says that it has been reported by Ludlow that there are no malarial mosquitoes in Cebu; but Brooke personally has found specimens of the genus *Myzomyia.* This variety of mosquito has been found to harbor the malarial parasite in certain stages of its development, but it has been found not to transmit malaria because it is believed that the development of the parasite is never complete. Brooke refers to the suggestion of Manson that there are some places free from malaria and yet surrounded by epidemic zones, as in the case of Cebu, because in that particular area food conditions for the mosquito may exist which are inimical to the growth of parasites in their bodies.

Medicolegal

Aim and Duty of Surgeons—Bad Results Alone Do Not Prove Malpractice

(Hills vs. Shaw (Ore.), 137 Pac. R. 229)

The Supreme Court of Oregon reverses a judgment for $6,000 damages for alleged malpractice in the treatment of the plaintiff's broken leg, and remands the case with instructions to enter a judgment of nonsuit. The court says that the testimony showed that the defendant was called to treat the patient June 4, properly diagnosed a fracture of the right femur, and, to all appearances, treated it by the usual methods known and approved by reputable surgeons, until July 23, when, on account of his intended removal to another locality, he left the case in the charge of another surgeon. It was not until after that, and after the plaintiff had begun to sit up and move around on crutches and had gone into town in an automobile that a misplacement or nonunion was suspected.

It being alleged and admitted that the defendant was a practicing physician and surgeon, practicing that profession at a certain place, which, in connection with the laws regulating the practice of medicine and surgery, necessarily implied that *prima facie*, at least, he had the requisite skill and ability. The substance of the doctrine taught by various instructive cases is that if a regularly licensed physician employs the skill of which he is possessed with reasonable diligence in treating a surgical case, he is not liable for an error of judgment, and that the mere fact that an untoward result ensues is not in any sense evidence of negligence. There are so many elements combating the surgeon in his efforts to restore a patient to bodily soundness that he can do no more than exercise his best skill and judgment to accomplish the desired result. The ideal which the surgeon strives to achieve in cases of this kind is so to establish coaptation of the broken parts of a bone, with the surfaces of the fresh fracture touching each other, that the bone is restored to its original situation, then by bandages or other appliances to keep it in position until healing ensues. This is the utmost that the highest degree of surgical skill can accomplish. Nature must do the rest.

Reduced to its lowest terms, this case was one in which the result of treatment was a failure. There was nothing to show that the surgeon did not do his best with what skill he possessed. The error of the plaintiff's contention consisted in relying on the abortive result of the treatment as an evidence of negligence on the part of the defendant, without showing further that some careless act or omission by the defendent produced that undesirable consequence. To hold the defendant liable under such circumstances would be to require him to insure absolute success in every operation which he undertook. Such a rule would be too drastic to be applied to the medical and surgical profession, and is not borne out by the authorities. However deplorable the condition of the plaintiff, there was a hiatus in the testimony on his behalf, between the time the defendant ceased to treat him and the subsequent discovery of the non-union of the bone, which broke the connection of the defendant with the untoward result so far as negligence was concerned.

Coloring of Articles of Food with Intent to Deceive

(People vs. William Henning Co. (Ill.), 103 N. E. R. 530)

The Supreme Court of Illinois says that the public health requires that food should be absolutely and unquestionably pure. In order to accomplish this the legislature may legislate against fraud or deception by means of false coloring. It may forbid the use of coloring-matter or dye, or of such a mixture of two or more ingredients of the same general nature as will deceive or mislead the public. A false color is sometimes more liable to deceive than a false brand. Every consumer has the right to distinguish for himself what an article of food is and to have the means of judging its quality and value for himself, uninfluenced by deception. In this case the defendant sold five barrels of vinegar, each of which had stenciled on its head in large, plain, black letters: "A compound of White Distilled and Sugar Vinegar." This was a violation of Section 11 of the Illinois pure food statute, which provides that, "All vinegar made wholly or in part from distilled liquor shall be branded 'Distilled Vinegar,' and shall not be colored in imitation of cider vinegar," as the compound had the color of cider vinegar, and the evident reason for making it was that it should have. The object of the pure food act is to protect not only the dealer and jobber, but also the retail purchaser or consumer, otherwise the law would be of little practical value. It may be that the regulation provided for in Section 11 will embarrass the dealers in this class of goods. The prudence of such a regulation may be debatable, but it is not indefensible. It is well known that the adulteration of food-products is carried on to such an enormous extent as to menace the health of the people. To redress such evils is a plain duty but a difficult task.

Asylum Records Protected by Statute Governing Privileged Communications

(Massachusetts Mutual Life Insurance Co. et al. vs. Board of Trustees (Mich.), 144 N. W. R. 538)

The Supreme Court of Michigan says that a writ of mandamus was sought to compel the board of trustees of the Michigan Asylum for the Insane, at Kalamazoo, to permit the relators to inspect the records of the asylum containing information concerning the mental and physical condition of one Willey, who was a patient in the asylum for nearly two years and a half prior to his death. It was contended (1) that the records of the asylum were open to the inspection of the relators under the terms of Act No. 76 of 1903, entitled "An act to facilitate the inspection of the records and files in the offices of the county, city," etc., and (2) that the relators, as parties to a pending suit begun for the cancellation of certain policies of life insurance which had been issued to Willey, had the right at common law to inspect the records of the asylum for the purpose of obtaining information necessary to enable them to prepare for the trial of such suit. Many authorities were cited in favor of the proposition that the general and well-settled rule is that all public records are open to the inspection of all persons who show an interest therein, and irrespective of whether the records

are such as could be introduced in evidence, and also of whether the matter recorded concerns a single person, a number, or the public at large. But none of the authorities was directly in point, though, if no question of privilege had been involved in this case, it might be said they were persuasive. The Michigan statute, as amended, in 1909, provides: "No person duly authorized to practice physic or surgery shall be allowed to disclose any information which he may have acquired in attending any patient, in his professional character, and which information was necessary to enable him to prescribe for such patient as a physician, or to do any act for him as a surgeon." This language has frequently been construed by this court. The construction has been invariably to preserve the privilege granted by the language of the statute. It will be noticed that the statute goes farther than to forbid giving testimony. Its language is: "No person duly authorized to practice physic or surgery shall be allowed to disclose any information," etc. The court is constrained to hold that the action of the trustees in refusing inspection of the asylum records was justified.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

Am. Assn. of Genito-Urinary Surgs., Stockbridge, Mass., May 15-16.
American Dermatological Association, Chicago, May 14-16.
American Gynecological Society, Boston, May 19-21.
American Laryngological Association, Atlantic City, May 25-27.
American Medico-Psychological Association, Baltimore, May 26-29.
American Neurological Association, Albany, May 7-9.
American Ophthalmological Society, Hot Springs, Va., May 12-13.
American Otological Association, Atlantic City, May 27-28.
American Pediatric Society, New London, Conn., May 26.
American Society of Tropical Medicine, Boston, May 29-30.
American Therapeutic Society, Albany, May 29-30.
Arkansas Medical Society, Eldorado, May 19-22.
Association of American Physicians, Atlantic City, May 12-13.
Connecticut State Medical Society, New Haven, May 20.
Florida Medical Association, Orlando, May 13-15.
Illinois State Medical Society, Decatur, May 19-21.
Iowa State Medical Society, Sioux City, May 13-15.
Kansas Medical Society, Wichita, May 6-7.
Maine Medical Association, Portland, June 10-11.
Maryland Medical and Chir. Faculty, Baltimore, April 28-30.
Massachusetts Medical Society, Boston, June 9-10.
Missouri State Medical Association, Joplin, May 12-14.
Nat. Assn. for Study and Prev. of Tuberculosis, Washington, May 7-9.
National Association for the Study of Epilepsy, Baltimore, May 25.
Nebraska State Medical Association, Lincoln, May 12-14.
New Hampshire Medical Society, Concord, May 13.
New York State Medical Society, New York, April 28-30.
North Dakota State Medical Association, Grand Forks, May 13-14.
Ohio State Medical Association, Columbus, May 5-7.
Oklahoma State Medical Association, Guthrie, May 12-14.
Rhode Island Medical Society, Providence, June 4.
South Dakota State Medical Association, Watertown, May 26-28.
Texas State Medical Association, Houston, May 12-14.
West Virginia State Medical Association, Bluefield, May 13-15.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held March 11, 1914

The President, DR. WILLIAM DUFFIELD ROBINSON, in the Chair

Inflammation of the Gall-Bladder: Its Causes, Symptoms and Results

This paper, by DR. JAMES TYSON, appears in this issue of THE JOURNAL, page 1295.

Treatment of Gall-Bladder Infections

DR. JOHN H. GIBBON: I have substituted the word "infections" for "gall-stones," as we now know that the primary cause of these stones is a microbic infection reaching the gall-bladder either through the blood or directly through the bile-passages from the intestine. If one feels warranted in making a diagnosis of gall-stones or gall-bladder infection, one should also feel warranted in advising operation unless there be some definite contra-indication. To await serious symptoms is comparable to awaiting glandular metastasis and malignant cachexia before making a diagnosis of cancer. The earliest and most persistent symptom of gall-bladder infection is what the patient calls "indigestion" or "distention" in the upper abdomen, coming on especially at night and without any definite relation to the taking of food. Jaundice is not essential to a diagnosis; in about 80 per cent. of gall-stone cases with operation, this symptom has been absent. Gall-bladder symptoms may result also from other causes than the presence of stones which demand operation.

In my series of twenty-six cases there were two of acute cholecystitis without stone and three of chronic cholecystitis without stone. In my opinion both patients would have later developed stones had they not been operated on. My series of cases includes three cases of acute gangrenous cholecystitis, in all of which there was recovery; two cases of acute cholecystitis without stone, one developing two weeks after typhoid; eight cases of stones in the common duct; one of stone in the ampulla of Vater requiring duodenotomy; one of calcification of the gall-bladder; one of abscess formation in the liver and spleen; one of subdiaphragmatic abscess two weeks after operation in a case of acute cholangeitis due to stones in the common duct; one of cirrhosis of the liver; one of stones ulcerating into the colon; twenty cases of stones in the gall-bladder alone or associated with some of the enumerated complications, and two cases of cancer of the gall-bladder. The greatest number of stones, 771, was found in one of the malignant cases. In the cases in which the duration of symptoms is given, the average is over six years. The youngest patient was 19 and the oldest 69 years of age. There were five deaths, all of which occurred in very ill patients. Regarding the probability of gall-stones reforming after operation, I believe that if all are removed and the gall-passages properly drained for about two weeks, recurrence is extremely rare.

The Roentgen Rays in the Diagnosis of Gall-Stones and Cholecystitis

This paper, by DR. GEORGE E. PFAHLER, appears in this issue of THE JOURNAL, page 1304.

DISCUSSION ON GALL-BLADDER INFECTIONS

DR. H. A. HARE: I believe that the statements of Anderson are warranted by our present knowledge. While surgical procedure is frequently the best, and often the only means offering a chance of relief, its advocacy, based on certainty of cure and assurance of non-recurrence, is not borne out by results. The main object of treatment is the relief of the infection and inflammatory changes, and not merely the removal of gall-stones. So long as there is no recurrence of the inflammatory attacks, there will be no attack of gall-stones. Recovery not infrequently occurs under non-operative treatment, especially in early and mild cases, and particularly after first attacks, before serious local damage has been produced by the infection.

Medical treatment should be given a fair trial in all cases in which the patient's physical condition does not warrant operation, and with the numerous patients who refuse operation. In many such cases Anderson has seen complete and permanent recovery from all symptoms of the disease. Medical treatment is indicated in many cases as a preliminary to operation, and in order to allow the acute infection to subside as far as possible. Medical treatment is indicated in all cases after operation to allow of complete subsidence of the infection, and if possible, to prevent reinfection and recurrence. Anderson believes that it would make for clearness of thinking and give definiteness to therapeutic aims if we adopted the suggestion of Naunyn and gave up the term "cholelithiasis" and classified these various infections of the biliary passages as cholangeitis with such qualifying terms as simple, catarrhal, suppurative, gangrenous, calculous, etc., according to the condition present in the particular case.

Anderson never advises strongly against operation in any case, unless it is definitely contra-indicated; but, after explaining the possibility of failure, and that operation may eventually be required, he does not hesitate in early and mild cases,

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especially after first attacks, to give medical treatment a thorough trial, and has found that in many instances, excellent and permanent results have been obtained. To this I would add that occasionally we see patients die after operation who would have lived many weeks if they had been let alone surgically. When there are evidences of septic trouble or gangrene, operation is, of course, imperative.

DR. WILLIAM E. HUGHES: It is important to recognize the existence of gall-stones because, while they may lie quiescent through the normal life of the patient, they are there and are a possible source of trouble. Nine times out of ten in cases in which my attention has been called to "gall-stones" collected from the feces they have proved to be not gall-stones, but foreign matter. The paroxysmal nature of the symptoms, and the relief of pain temporarily on eating, are characteristics very suggestive in diagnosis. Probably the one symptom which is never lacking is that of indigestion.

DR. THOMAS R. NEILSON: We cannot emphasize too strongly the danger of delaying operation with the diagnosis of cholecystitis fairly made. Although the attacks may subside, there is always the danger of recurrence and of the development of malignant disease. The symptom of indigestion as indicative of a chronic lesion of the gall-bladder is important, and sometimes the only one on which a diagnosis can be made. At operation pericholecystitis is one of the commonest associated conditions, and for this nothing but operation would be of avail.

DR. W. WAYNE BABCOCK: I would emphasize the value of local anesthesia in certain types of gall-bladder disease. We should realize that gall-stones represent a terminal condition. The patient may have had few symptoms for five or twenty years, but finally develops an acute condition. In such a case it would have been much better to try to prevent such an outcome by early operation. It is interesting to note what other symptoms may follow gall-bladder disease. Most surgeons have seen cases in which the most surprising results have followed operation on the gall-bladder. Arthritis deformans sometimes disappears after a gall-bladder operation. In a patient with tic douloureux who developed gall-bladder disease the pain of the former condition disappeared after removal of the pus and gall-stones. We know that neuritis may result from gall-bladder infection. There are also conditions in the intestinal tract and other remote conditions due to intoxication or passage of the bacteria to these parts of the body. It seems to me that within the next two or three years we are going to revise our conceptions of intestinal indigestion.

DR. ROBERT N. WILLSON: I have seen more than once cases of cholangeitis and also gall-stone cases of necessity treated medically when the surgeon could not be reached. In such cases the symptoms have disappeared with the emptying of the intestinal tract. In gall-stone cases I have seen more than one case carried over year after year simply because the patient absolutely refused operation.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Surgery, Philadelphia

April, LIX, No. 4, pp. 465-642

1 *Methods Suggested for Bone Transplantations. C. A. McWilliams, New York.
2 *Autogenous Bone Grafting for Fracture of Patella. J. Rogers, New York.
3 *Treatment of Ununited Fractures of Tibia by Transplantation of Bone. Report of Nine Cases. M. S. Henderson, Rochester, Minn.
4 Treatment of Ununited Fractures of Tibia by Intramedullary Bone Transplants. Report of Five Cases. E. F. Robinson, Kansas City, Mo.
5 Transvesical Prostatectomy in Two Stages. P. M. Pilcher, New York.
6 Normal Bladder and Its Sphincters and Changes Following Suprapubic Prostatectomy. A. Hyman, New York.
7 Eversion of Bladder. H. Packard, Boston.
8 Arteriovenous Aneurysm of External Iliac Vessels with Wound of External Iliac Vein. B. M. Bernheim, Baltimore, and P. Wroth, Jr., Hagerstown, Md.
9 Perforating Gastric and Duodenal Ulcers. F. Martin, Baltimore.
10 *Peritoneal and Pleural Absorption, with Reference to Postural Treatment. W. E. Dandy and L. G. Rowntree, Baltimore.
11 Subcutaneous Traumatic Rupture of Normal Spleen. A. F. Barnes, Cambridge, Mass.
12 Hernia of Large Intestine. A. V. Moschcowitz, New York.
13 *Looping Cardinal Lateral Ligaments in Uterine Prolapse. A. J. Nyulasy, Perth, Western Australia.
14 Simple and Complete Forms of Apparatus for Intratracheal Anesthesia. H. H. Janeway, New York.

1. Abstracted in THE JOURNAL, Feb. 28, p. 731.

2. **Autogenous Bone Grafting.**—Rogers suggests that the autogenous bone graft be taken from the crest of the patient's tibia and implanted on the front of the patella to bridge the lines of fracture. He describes the procedure as follows: Make a U-shaped flap, with the apex of the convexity over the ligamentum patella and the extremities over the condyles of the femur, suture the lateral rents in the fibrous capsule. Denude the anterior surface of the patella fragments of periosteum over an area about 1 inch square on each side of the line of fractures. Expose the crest of the tibia and chisel off from its inner surface a quadrilateral plate 1½ inches long, ¾ inch wide by ⅛ inch thick. Leave its periosteum undetached. Place this with its raw surface in apposition with the denuded area in front of the patella. Unite the fragments by a figure-eight suture of chromicized catgut or kangaroo tendon, which grasps the ligamentum patella and quadriceps tendon immediately below and above the broken bone and crosses in front of the transplant. The periosteum, which was previously turned back from the patella, is next drawn up to or over the transplant with a couple of catgut sutures. The skin incisions are closed by a subcuticular catgut stitch, and the limb enclosed in a plaster-of-Paris case splint for four or five weeks.

3. **Transplantation for Ununited Fracture.**—Henderson advises taking the bone to be transplanted from the tibia, either above or below the fracture, preferably from the flat internal surface of the tibia rather than from the crest which is dense, strong and being the apex of a triangle, serves a most important weight-bearing function. A piece of bone removed from here down to the medullary cavity weakens the bone out of all proportion to the size of the piece removed. The bone on the interal surface is not so dense and is also more vascular and a large piece may be removed here without greatly weakening the bone. All the layers, i.e., periosteum, cortex and medullary lining should be included in the transplant. In the tibia by forming a gutter down to the medullary cavity, the transplant can be placed so that periosteum meets periosteum, cortex meets cortex and medullary lining meets medullary lining, thus obtaining an anatomic approximation favorable to rapid healing.

The bone should be of sufficient length to make a substantial bridge, usually 2 or 3 inches long and about ½ inch in breadth and should include all the layers. The transplant is sewed in by stitching the periosteum of the transplant to the periosteum of the shaft. The skin is then closed with silkworm and horsehair and the dressing applied. A plaster-of-Paris cast is applied to include the knee and ankle. This is removed at the end of two weeks. Sutures are removed and a new cast put on which is left for from four to six weeks. Further treatment is guided by the individual case. Union is usually firm enough to permit walking in from three to six months.

10. **Peritoneal and Pleural Absorption.**—By injecting collargol into the peritoneal and pleural cavities of dogs and later making a roentgenograph Dandy and Rowntree have been able to observe the effect of gravity on fluids in these cavities. These examinations demonstrate that gravity exerts a very important influence in determining the localization of fluids. In the pleural cavity gravitation is practically instantaneous, in the peritoneal it is slower, its course being retarded and the direction influenced by the intestines. There is no evidence of an intraperitoneal current to the diaphragm. There is very active absorption of fluids from all parts of the normal peritoneal and pleural cavities. This absorption is essentially

hemic and not lymphatic. Peritoneal absorption is practically equal in all postures except pelvis-down, in which it is 15 per cent. less than in the others. Pleural absorption is practically equal in all postures except pelvis-down, in which it is 13 per cent. less.

The explanation of these findings the authors are unable to give. They suggest that the visceral peritoneum undoubtedly plays an important part in absorption—probably a more active part than the visceral pleura. The authors have no evidence to support the view that there is an intraperitoneal current to the diaphragm, nor any evidence in favor of the claims that the central tendon or the diaphragm as a whole performs more than its proportional amount of peritoneal absorption. The authors conclude that though Fowler's position as originally instituted was based on entirely fallacious and disproven grounds, there is adduced evidence of a different character, perhaps sufficient to justify the resort at times to this postural method in the treatment of acute diffuse peritonitis. The above results tend also to support the employment of Coffey's lateral modification of Fowler's position.

13. **Uterine Prolapse.**—The only operative procedure for uterine prolapse which seems to Nyulasy to bear the light of rigid investigation is that which directly deals with certain tissues (in the broad ligaments) passing out from the sides of the uterus. These structures—the cardinal ligaments—are the main element holding the uterus at a more or less definite level in the pelvis. Their supporting power is illustrated in vaginal hysterectomy (in a normally-fixed uterus), when all supporting elements except the broad ligaments have been completely severed. At this stage in the hysterectomy the uterus can only be drawn down by a vulsellum in the cervix exercising some force, the resistance to this force being the pull of the cardinal ligaments on the uterus. When the vulsellum is released the cardinal ligaments, pulling on the uterus, draw it back to its original position.

The cardinal ligaments can readily be demonstrated by turning the bladder down from the uterus. They commonly arise by three more or less definite heads from each side of the uterus, the middle head corresponding to the position of the uterine artery, the interior head being attached to the upper surface of the lateral vaginal fornix and the superior head being attached a little above the median head. The three heads of the cardinal ligament unite together to form a band about half an inch or more in width which passes outward for over an inch between the layers of the broad ligament. The cardinal ligament which, up to this is largely muscular, now tends to change its character, sending off fibrous bands, fan-wise to the wall of the pelvis and other parts, some of these bands being inverted into the posterolateral wall of the bladder and others passing up over the iliacs.

After locating the ureter the cardinal ligament may be dissected from the posterior peritoneal layer of the broad ligament and thus completely isolated. The primary supports of the uterus in Nyulasy's opinion are its ligaments, while the secondary support is the pelvic diaphragm. The cardinal ligaments being exposed as stated are dissected off the posterior layer of the broad ligaments and looped up on the anterior wall of the uterus to which they are sutured with silk. After taking a loop in each round ligament the wound in the peritoneum is closed with a continuous catgut suture. The more striking advantages of the operation are said to be: 1. The practical absence of hemorrhage. 2. The excellent immediate anatomical result and almost certain good permanent effect. 3. The comparative absence of postoperative shock. 4. The absence of raw surfaces.

Boston Medical and Surgical Journal

April 2, CLXX, No. 14, pp. 481-560

15 Architecture of Children's Hospital. C. A. Coolidge, Boston.
16 Development of Hospital with Especial Reference to Medical Service. T. M. Rotch, Boston.
17 History of Children's Hospital with Especial Reference to Orthopedic Department. R. W. Lovett, Boston.
18 Work of Children's Hospital in 1913. J. L. Morse, Boston.
19 Orthopedic Surgery at Boston Children's Hospital. Review of Thirty Years of Continuous Service. E. H. Bradford, Boston.
20 Infantile Scorbutus. J. L. Morse, Boston.
21 Inguinal Hernia in Children. J. S. Stone, Boston.
22 Case of Chondro-Osteosarcoma. Amputation of Hip. R. W. Lovett, Boston.
23 Obstetric Paralysis with Especial Reference to Treatment. J. J. Thomas, Boston.
24 Round Shoulders with Short Clavicles. A. Thorndike, Boston.
25 Removal of Foreign Bodies from Esophagus and Lower Air Passages in Children. D. C. Greene and F. E. Garland, Boston.
26 Influence of Alkalies on Gastric Motility. M. Ladd, Boston.
27 *Study of Etiology in One Hundred and Seventy-Five Epileptic Children. A. W. Fairbanks, Boston.
28 Hemorrhage Following Tonsillectomy. F. E. Garland and D. C. Greene, Boston.
29 Poliomyelitis. Operative Treatment. R. Soutter, Boston.
30 Importance of Early Recognition of Acute Arthritis of Hip-Joint in Infants. R. T. Legg, Boston.
31 Diagnosis of Enlarged Thymus and Symptomatology of Hyperthymatism. P. H. Sylvester, Boston.
32 Treatment of Cervical Adenitis in Children. W. E. Ladd, Boston.
33 Case of Lymph Cyst of Mesentery. C. G. Mixter, Boston.
34 Flat Foot in Children. A. Ehrenfried, Boston.
35 Pyelitis in Infancy and Childhood. E. T. Wyman, Boston.
36 Two Cases of Cirrhosis of Liver in Childhood. E. Ely, Boston.
37 Case of Multiple Bone Tuberculosis Atypical in Its Distribution and Roentgen-Ray Appearances. H. J. Fitz Simmons, Boston.
38 *Significance of Von Pirquet Reaction in Surgical Tuberculosis in Children. L. B. Robertson, Boston.

April 9, CLXX, No. 15, pp. 561-600

39 *Gonorrheal Metastatic Arthritis. H. W. E. Walther, New Orleans.
40 Seasonal and Meteorologic Influence on Tubercular Patients. N. B. Burns, Reading.
41 Apparatus for Use in Operations on Open Thorax. C. A. Ewald, Seattle, Wash.
42 Insanity in China. A. C. Reed, Changsha, China.
43 Educational Standards for Nurses. State Registration and Training School Inspection. S. E. Parsons, Boston.

27. Etiology in 175 Epileptic Children.—The study of 175 cases confirms an opinion Fairbanks has held for many years, as the result of the observation of many hundred epileptic children, that heredity is a minor factor in the etiology of epilepsy, whenever the disease is studied at such an age that the true details of the past and family history of the victim can be obtained. These data are obtainable in the case of children to an infinitely greater extent than when the disease is investigated only in adults. Both the data and physical examination of epileptic children indicate that the affection in the majority of instances is the result of acquired cerebral injury from trauma or disease.

38. Von Pirquet Reaction in Surgical Tuberculosis in Children.—In all cases having clinical evidence of surgical tuberculosis, either in bone or soft tissues examined by Robertson, 2.9 per cent. showed negative Von Pirquet reactions. In those cases not showing definite clinical evidence of tuberculosis, although some showed enlarged anterior cervical glands and others gave a family history of tuberculosis, 14 per cent. showed positive cutaneous reactions. In the apparently nontuberculous cases, the reaction was more frequently negative in the younger children, as seen from the following: 0-4 years, 48 cases; positive reactions in 10 per cent.; 4-8 years, 61 cases; positive reactions in 14.5 per cent.; 8-12 years, 40 cases; positive reactions in 17.5 per cent.

From these above figures it is concluded that the Von Pirquet reaction is fairly reliable in children under 12 years of age, but that it has less significance where the patient shows enlargement of the anterior cervical lymph-nodes or gives a family history of tuberculosis.

39. Gonorrheal Metastatic Arthritis.—Walther says he passes over the internal treatment for something more promising. The newer surgical procedures which have been employed in combating this disease have undoubtedly done much toward curing the severer forms. Of the numerous operations advocated Walther mentions four, namely, (1) aspiration of the joint alone; (2) aspiration of joint plus the injection into same of some antiseptic or disinfectant; (3) making incision into joint, irrigating and draining same according to the method of Schuller, and (4) Fuller's operation of seminal vesiculotomy. Taking them up separately we might say that it is reasonable to believe, he says, that some cases have apparently been cured by simply aspirating the accumulated fluid from the affected joint; sometimes a single aspiration will suffice, while in other cases the procedure must be repeated at intervals as needed. The aspiration of gonorrheal joints with the injection

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of an antiseptic or disinfectant solution has been popularized by Murphy in this country and by Hildebrand and Roux in Europe. Murphy uses a 2 per cent. dilution of liquor formaldehyd in glycerin, and of this solution he injects 5 to 20 c.c. depending on the quantity of fluid aspirated and the size of the joint. Hildebrand and Roux inject tinctura iodid (5i to 3iii) into the joint instead of liquor formaldehyd.

When either or both of the above treatments fail, the joint should either be freely opened, cleansed, packed and drained, or double drainage should be instituted with daily through and through irrigations of 1-5,000 bichlorid of mercury solution. Fuller has recently proposed a new method for curing cases of gonorrheal arthritis by his operation of seminal vesiculotomy. Up to the present time he has performed this operation 251 times, 122 of which were for gonorrheal metastatic arthritis, without a single fatality.

California State Journal of Medicine, San Francisco

April, XII, No. 4, pp. 129-166

44 Tuberculous Glands of Neck; Their Relation to Diseases of Nose and Throat. Radical Operation for Their Removal. R. S. Stevens, San Francisco.
45 Psychologic Study of Mentally Defective and Otherwise Exceptional Children. E. B. Hoag, Los Angeles.
46 Therapy of Typhoid. E. O. Jellinek, San Francisco.
47 Roentgen-Ray Dosage. H. E. Ruggles, San Francisco.
48 Vital Statistics. E. Goodman, San Francisco.
49 Medical Situation of New Workmen's Compensation Act. J. R. French, Los Angeles.
50 Principles Governing Indications for Cesarean Section. A. B. Spalding, San Francisco.
51 Hygienic Shoeing—Anatomic Facts Vs. Convention and Style. C. C. Crane, San Francisco.

Georgia Medical Association Journal, Augusta

April, III, No. 12, pp. 395-430

52 Clinical Interpretation and Application of Wassermann Reaction. E. G. Ballenger and O. F. Elder, Atlanta.
53 Local Anesthetics, with Special Reference to Novocaine. W. S. Goldsmith, Atlanta.
54 Practical Anesthesia. C. Usher, Savannah.
55 Paramyoclonus Multiplex. Report of a Case. T. S. Clay, Savannah.
56 Abuse of Purgatives Following Abdominal Operations. H. S. Munroe, Columbus.
57 Hemorrhage and Surgical Shock. W. W. Battey, Jr., Augusta.
58 Appendicitis without Appendiceal Symptoms. R. M. Harbin, Rome.

Journal of Experimental Medicine, New York

April, XIX, No. 4, pp. 319-416

59 *Effects of Early Extirpation of Thymus in Albino Rats. A. M. Pappenheimer, New York.
60 Relation of Gastro-Intestinal Tract and Contents to Body-Weight in Rabbits. A. E. Livingston, Ithaca.
61 *Nature of Opsonic Substances of Normal Sera. H. Zinsser and E. G. Cary, New York.
62 *Strain of Spirochaeta Pallida Isolated from Nervous System. H. J. Nichols, U. S. Army.
63 Nitrous Oxide as an Anesthetic in Animal Experimentation. D. H. Dolley, Columbia, Mo.
64 Rapidity of Involution of Active Thyroid Hyperplasias of Brook Trout Following Use of Fresh Sea Fish as Food. D. Marine, Cleveland.
65 *Ferments and Ferment-Inhibiting Substances in Tuberculous Caseous Material. J. W. Jobling and W. Petersen, New York.
66 *Effect of Dilution of Plasma Medium on Growth and Fat Accumulation of Cells in Tissue Cultures. R. A. Lambert, New York.
67 Pathogenicity of Trypanosoma Lewisi. W. H. Brown, New York.
68 *Penetration of Virus of Poliomyelitis from Blood into Cerebro-Spinal Fluid. S. Flexner and H. L. Amoss, New York.

59. **Early Extirpation of Thymus in Albino Rats.**—One hundred and eight rats were used by Pappenheimer for this study. Of these eighty-two were thymectomized, the remainder serving as controls. He found that removal of the thymus does not produce an arrest or retardation of body growth and development. Qualitative changes in the skeletal system or teeth have not been found. In emaciated weak animals osteogenesis is less active than in healthy rats and the long bones are smaller and more delicate in structure. Such quantitative differences appear to depend in the general nutrition, are equally pronounced in rats whose development is retarded from other causes and cannot be referred specifically to loss of thymus function. No constant or characteristic alterations were detected in the spleen, testes, adrenals or thyroid. Whatever functional correlations may exist between thymus and any or all of these organs are not evident from the occurrence of histologic changes after the removal of the thymus. The relative proportion of lymphocytes in the blood is diminished for the first few weeks after the operation. Pappenheimer has not determined how long this alteration in the leukocytic formula persists.

Two rats were killed 185 days after operation. Minute examination of a complete series of the neck organs, including the thyroid, failed to show any tissue which could be interpreted as thymus. The bones showed no rachitic changes.

61. **Nature of Opsonic Substances of Normal Sera.**—Zinsser's and Cary's experiments show that the albumin fraction or endpiece obtained by the dialysis of normal guinea-pig serum possesses definite opsonic action. This action is often almost equal to that residing in the unfractionated alexin. It is evident, however, only if the reaction maintained during the experiments approximates that of the original serum. By the addition of small quantities of weak sodium hydrate solution to the dialyzed serum they have been able to bring back opsonic action which was not evident in the same end-piece if simply rendered isotonic. They have been unable to reactivate the hemolytic function of end-piece by alteration of reaction.

Their experiments suggest that the opsonic action of the albumin fraction is enhanced by preliminary sensitization of the bacteria with heated normal serum and by persensitization of such bacteria with the globulin fraction. However, they are not positive of this since the slight differences of phagocytic counts on which such an opinion can be based fall within the limits of what they consider experimental error. The fact that the albumin fraction can exert opsonic activity on bacteria but cannot hemolyze blood-cells seems particularly interesting in the light of the fact that alexin can be absorbed by unsensitized bacteria but not by similarly untreated blood-cells. Zinsser and Cary think that their experiments do not point to a differentiation of normal opsonin from alexin, but they believe they indicate that the so-called end-piece can enter to a slight extent into non-specific relationship with unsensitized bacteria and it is therefore active, whereas it cannot enter into a similar relation to unsensitized cells. This conception, however, is tentatively made, since they are studying further the non-specific absorption of alexin or complement by unsensitized bacteria.

62. **Observations on Spirochaeta.**—A strain of *Spirochaeta pallida* isolated by Nichols from the nervous system has shown the following constant characters: (1) thick form; (2) the production of hard, well demarcated lesions with necrotic centers; (3) a characteristic location of the lesion; (4) a short incubation period; (5) a tendency to generalize with lesions of the skin and eye, following local inoculation of the testicle and scrotum. It is suggested that these characters constitute a definite strain of highly invasive power and that a classification of members of the pallida group may be made in accordance with this power.

65. **Ferments in Tuberculous Caseous Material.**—Jobling and Peterson point out that caseous matter obtained from lymph-nodes which have not become secondarily infected contains substances which inhibit enzyme activity. These substances consist chiefly of soaps of the unsaturated fatty acids. The inhibiting substances are present in relatively smaller amounts when the caseous matter has become secondarily infected. This is probaly due to the dilution and washing out of the soaps. Ferments are either entirely absent or present in very small amounts, unless the caseous matter has become secondarily infected.

Caseous material from the lungs contains smaller amounts of the inhibiting substances. This may be due to the acuteness of the process which does not permit an accumulation of the soaps or to the binding of the soaps with the ferments. Ferments are present in caseous pneumonia. In the whole emulsion the ferments are less active in an alkaline than in an acid reaction; but removal of the soaps shows that those active in an alkaline reaction are also present in considerable amounts. The previous treatment with iodin of caseous matter from both lymph-nodes and lungs increases the action of the trypsin.

66. **Growth of Cells in Tissue Cultures.**—Dilution of plasma with isotonic solution Lambert says causes a more extensive migration in cultures of cells of the actively migratory type, such as those of spleen and bone-marrow. Dilution with a limited quantity of distilled water produces the same effect. Less actively motile cells are influenced little or not at all by dilution. The effect on cells of the first type is probably due to the reduction in the quantity of fibrin in the clot producing lessened resistance to cell locomotion. Dilution of plasma with either isotonic solutions or distilled water is without effect on cell multiplication as is shown by records of the number of mitoses in living culture preparations. Dilution of plasma with suitable quantities of Ringer's solution causes a marked diminution in the quantity of fat accumulated by the cells. This reduction is to be attributed to the decrease in the quantity of fat in the medium. The accumulation of fat by cells in cultures is therefore not to be regarded as the result of a cell degeneration, but as an accumulation, the source of the fat being the medium in which the cells are growing.

68. **Penetration of Virus of Poliomyelitis.**—It is stated by Flexner and Amoss that the virus of poliomyelitis introduced into the blood may pass indirectly by way of the cerebrospinal fluid to the interstices of the central nervous organs. To reach the cerebrospinal fluid the virus must first penetrate the barrier of the choroid plexus which operation requires time. By the inoculation test no virus was detected in the fluid at expiration of forty-eight hours, only small amounts at the expiration of seventy-two hours, while at the expiration of ninety-six hours the virus had passed more freely. The virus was still detectable in the fluid at the onset of paralysis nineteen days after the intravenous injection. Pathologic conditions of the leptomeninges and the cerebrospinal fluid play an important part in the pathogenesis of epidemic poliomyelitis.

Journal-Lancet, Minneapolis

April 1, XXXIV, No. 7, pp. 175-200

69 *Cholecystitis and Factors that Control Results of Operations C. H. Mayo, Rochester.
70 Dangers of Carbohydrate Over-Feeding Especially with Starches. F. W. Schlutz, Minneapolis.
71 Induced Climacteric. F. E. Walker, Hot Springs, S. D.
72 Luetic Mediastinitis: Report of Five Cases. H. Z. Giffin Rochester.
73 Rectal Elimination: Case-Reports. A. Kuhlmann, Melrose.
74 *Non-Papillary Benign Tumors of Bladder E. S. Judd, Rochester.

69. Abstracted in THE JOURNAL, January 24, p. 325.

74. Abstracted in THE JOURNAL, January 31, p. 405.

Lancet-Clinic, Cincinnati

March 28, CXI, No. 13, pp. 357-392

75 Congenital Tumors of Neck C. E. Caldwell, Cincinnati.
76 Etiology of Pelvic Prolapse, Anatomically Considered. S. Stark, Cincinnati.
77 Case of Roentgen Atrophic Dermatitis and Arsenic Keratosi M. Scholtz, Cincinnati.

April 4, CXI, No. 14, pp. 393-418

78 Unrecognized Meningitis as Complication of Bezoldt Mastoiditis. G. A. Hlinen, Cincinnati.
79 Poisons. C. T. P. Fennel, Cincinnati.
80 Eye Complications Following Small-Pox. L. D. Brose, Evansville, Ind.
81 Mysticisms of Past and Realisms of To-Day in Practice of Medicine. P. L. Gunckel, Dayton.
82 Care of Tuberculosis Patients. C. R. Holmes, Cincinnati.
83 Emil Fischer's Theory of Substitution—John J Abel's "Vividiffusion." A. Rohde Pittsburgh

Laryngoscope, St. Louis

March, XXIV, No. 3, pp. 161-240

84 Fixed Sources of Hemorrhage from Tonsillectomy and Its Absolute Control. J. L. Davis, Philadelphia.
85 Gateways of Cryptogenic Infection. Alveolar Processes. W. H. Haskin, New York.
86 Complete Bilateral Bony Occlusion of Both Nasal Choanae. A. O. Pfingst, Louisville, Ky.
87 Case of Purpura Hemorrhagica. E. B. Gleason, Philadelphia.
88 Supplemental Vicarious Menstruation Cured by Submucous Resection of Nasal Septum. W. T. Patton, New Orleans.
89 Removal from Esophagus by Means of an Esophagoscope of Plate of False Teeth Embedded for Eighteen Years. D. B. Kyle, Philadelphia.
90 Death of an Infant Caused by Fragment of Peanut in Left Lung. E. W. Carpenter, Greenville, S. C.
91 Barany's Theory of Cerebellar Localization: Diagnostic Value of Pointing Test in Cerebellar Abscess. P. D. Kerrison, New York.
92 Diagnosis and Treatment of Brain Abscess. W. Sharpe, New York.
93 Effect of Temperature on Endolymph. E. P. Fowler, New York.
94 Eleven Cases of Diphtheria and Pseudo-Diphtheria—Infection in Mastoid Wound. J. J. Thomson, New York.

Medical Record, New York

April 11, LXXXV, No. 645-690

95 *Phenomenon of Pathologic Antagonism: Its Relation to Diabetes Mellitus. H. S. Stark, New York.
96 *The Thymus. O. Lerch, New Orleans, La.
97 Cure of Habitual Constipation by Intraabdominal Use of Oil. W. F. Burrows, New York.
98 Practical Points in Surgery. F. E. Walker, Hot Springs, S. D.
99 *Liver Abscess. A. Jacoby, New York.
100 Internist and Seminal Vesiculitis. T. A. Kenefick, New York.

95. **Phenomenon of Pathologic Antagonism.**—The idea Stark intends to convey by the term "pathologic antagonism" is the tendency of a morbid process to come to a standstill or to disappear on the supervention of another. His interest in this subject arose from an observation of a number of unique and anomalous cases of diabetes mellitus in association with other disorders in which the glycosuria disappeared by reason of the complicating affection.

The cases considered are arranged in three groups, as follows: (a) those in which the glycosuria alternated with some other clinical symptom; (b) those in which the diabetes disappeared on the establishment of some other disease; (c) cases in which a chronic glycosuria disappears permanently after a surgical operation.

Group (*a*).—An example of this group is the following: A chronic glycosuria alternating twice in the same patient with urticaria, without any change of diet or medication. Another was a case in which a glycosuria alternated with the Wassermann reaction. Group (*b*).—As examples are cited the cessation of diabetes after an acute pneumonia, typhoid, dysentery, scarlatina and erysipelas. Group (c) concerns chronic glycosurias which disappear after a surgical operation. Examples are the following: The apparent cure of diabetes after an appendectomy, or after drainage of the bile ducts. Also after extirpation of uterine and ovarian tumors even of a malignant type.

96. **The Thymus.**—Lerch says he never examined a hysteric or neurasthenic patient in whom he did not find an enteroptosis. It is a condition especially suited to favor circulatory disturbances, frequently aggravated by a movable heart. The thymus shares in all of them, giving rise to pressure symptoms and to intoxication. Necessarily the cerebral circulation has to suffer and irritation of the centers, coupled wth the congestion that exists in the abdominal organs and the anemia of the chest may well explain the various symptoms. The treatment bears out this view; that is, measures that influence the general circulation and restore its equilibrium benefit these patients most. The abdomen, usually pendulous, and the abdominal muscles relaxed, have to be restored to normal tone by suitable exercises, to insure an increase of intra-abdominal pressure. Contracted abdominal muscles secure, with the up and down movements of the diaphragm, especially during deep respiration, a thorough massage of the abdominal contents, and restore tone to vessels and aid the heart. Deep breathing is therefore indicated with exercises to strengthen these muscles. Muscular tissue cannot be made at short order, and these patients need, therefore, a substitute to give relief. A well-fitting bandage is the best for this purpose.

Rest in the recumbent posture is another important measure in the treatment of these cases. Only in the most severe cases is continued rest of use. Intermittent rest, one to two hours after the noonday meal, and an early bedtime, are usually sufficient to help restore these patients to health. The blood has to be kept in the upper portion of the body by heart force and muscular tone. The diet has to be regulated according to the climate and season, to the work the patient can still perform, whether he is fat or lean, young or old, affected with gastro-intestinal troubles or free from them. Fresh air is needed in these as in all other cases of sickness.

Organic diseases caused by the chronicity of the trouble or due to other causes has to be treated as in other cases. Thymus extract increases nervous symptoms. Surgery is indicated if medical treatment fails.

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99. **Liver Abscess.**—Jacoby cites six cases. One case was due to mechanic injury, indirectly causing a contusion of the liver, and thus furnishing a point of lessened resistance to the action of bacteria. One case was due to the direct extension of the infection from a suppurating and gangrenous gall-bladder, the abscess being formed on the under surface of the liver. Two cases were due to dysentery. In one case autopsy confirmed the presence of the etiologic factor. In two cases no definite etiologic factor could be assigned.

Mississippi Medical Monthly, Vicksburg

April, XVIII, No. 12, pp. 227-240

101 Harmony in Profession. J. A. Davis, Dockery.
102 Mississippi Bureau of Vital Statistics. H. S. Capps, Gulfport.
103 Importance of Early Diagnosis in Uterine Cancer. S. W. Glass, Lyon.
104 Tuberculosis, the Physicians and Laity. H. Boswell, Jackson.
105 Influenza. J. O. Gurney, Tupelo.

New Jersey Medical Society Journal, Orange

April, XI, No. 4, pp. 163-216

106 Cancer Problem. T. S. Cullen, Baltimore.
107 Newer Standpoints in Diagnosis and Treatment of Anemia. K. M. Vogel, New York.
108 Gastric Ulcer. J. M. Cassidy, Jersey City.
109 Sero-Salvarsan Treatment of Paresis and Locomotor Ataxia. O. Lowry, Newark.
110 Nitrous Oxid and Oxygen in Prolonged Anesthesia. C. B. Kelley, Jersey City.

New Orleans Medical and Surgical Journal

April, LXVI, No. 10, pp. 707-784

111 Abdominal Gunshot Wounds: Report of Two Unusual Cases. L. H. Landry, New Orleans.
112 Drug Eruptions. I. Dyer, New Orleans.
113 Pellagra. P. Rayer, Paris.
114 *Urticaria—Experimental Lesion Produced by Local Application of Betalmidazolylethylamin. Its Relation to Intestinal Toxemia. A. Eustis, New Orleans.

114. **Urticaria.**—In the treatment of urticaria Eustis says that the aim should be to prevent the putrefaction of histidin in the intestinal canal, and this can be prevented by not introducing any histidin, or when introduced by overcoming the tendency to intestinal stasis. This latter can best be overcome by an initial purgative. The following has given Eustis uniformly good results:

		gm. or c.c.	
℞	Hydrarg. chlor. mitis	2	gr. iij
	Phenolphthalein	4	
	Pulv. rhei .....aa		gr. vj
	M. et caps. No. iij		

Sig.: One every half hour at night.

In the Charity Hospital accurate records have been kept of several hundred cases in which this combination has been given and the average time of the first stool has been eight hours after the last dose, with little or no nausea, and colic. As a rule, it is not necessary to give a saline afterward. Daily evacuations of the bowels should be seen to and this can be best accomplished by liquid albolene in 2 or 3-ounce doses, fig paste containing chopped-up senna leaves or agar-agar taken in oatmeal in the morning. However, by adding beets, celery, spinach and other articles of diet containing much cellulose to a diet such as outlined by Salomon consisting of tea, coffee, bouillon, lemon and grape juice, potatoes, rice, cereals and plenty of butter and sugar with 200 gms. of bread made of coarse flour and instructing the patients to observe regularity in emptying the bowels and also the taking of a glass of water on rising in the morning, the condition can easily be remedied by overcoming the intestinal toxemia. The intestinal toxemia can easily be judged by frequent examinations of the urine for indican and whenever present in more than a trace, protein food should be eliminated from the diet. A virulent culture of the *Bacillus bulgaricus* has also given good results.

New York Medical Journal

April 4, XCIX, No. 14, pp. 661-708

115 Modern Technic in Urethral Stricture. C. H. Chetwood, New York.
116 Advantages and Disadvantages of Quarantining Hospital Wards for Measles. E. E. Graham, Philadelphia.
117 Dreams. A. L. Benedict, Buffalo.
118 Mischief of Free Medical Service. W. S. Gotthelf, New York.
119 Differential Diagnostic Value of Cyclic Indicanuria in Gastro-Intestinal Diseases. G. Baar, Carlsbad, Austria.
120 Contrast in Psychanalysis: Three Cases. T. A. Williams, Washington, D. C.
121 Retrourethral Cystoscopic Guide for External Urethrotomy. D. A. Sinclair, New York.
122 Roentgenography of Intestinal Tract. G. Rosenbaum, Philadelphia.
123 Affective Activity, Emotion, as Cause of Various Neurasthenic Bodily Diseases. G. E. Barnes, Herkimer.

April 11, XCIX, No. 15, pp. 709-760

124 Psychopathic Children. L. P. Clark, New York.
125 Internal Pachymeningitis in Young Children. A. Gordon, Philadelphia.
126 Hypertrophic Pyloric Stenosis in an Infant: Rammstedt's Operation. Case Report. H. Lilienthal, New York.
127 Toxemias in Genesis of Hyperthyroidism and Their Treatment. C. E. de M. Sajous, Philadelphia.
128 Sixteenth Century Paranoiac. G. E. Price, Philadelphia.
129 Plastic Operation for Restoration of Severed Vocal Cords: Permanent Thyroid Fistula Following Attempted Suicide with Razor. H. Smith, New York.
130 The "Why" of Obesity. F. M. Bell, Ottawa, Canada.
131 Dream Interpretation. H. Crenshaw, Atlanta, Ga.
132 Gum Camphor as Preservative for Urine. J. Rosenbloom, Pittsburgh.

Surgery, Gynecology and Obstetrics, Chicago

April, XVIII, No. 4, pp. 401-448

133 *Resection of Rectum for Cancer with Preservation of Sphincter. C. H. Mayo, Rochester, Minn.
134 *Carcinoma of Lower Lip: Its Diagnosis and Operative Treatment. J. C. Bloodgood, Baltimore.
135 *Operation of Gastrojejunostomy and Principles which Should Determine Its Use. H. J. Paterson, London.
136 Cholecystectomy vs. Cholecystostomy and Method of Overcoming Special Risks Attending Common Duct Operations. G. W. Crile, Cleveland.
137 *Bacteriologic Study of Fifty Cases of Non-Tuberculous Diseases of Bladder and Kidney. V. C. David, Chicago.
138 Treatment of Transplantable Rat Sarcoma by Fulguration. S. P. Beebe and E. V. N. Van Alstyne, New York.
139 Urinary Incontinence in Women, without Manifest Injury to Bladder. H. A. Kelly and W. M. Dumm, Baltimore.
140 Fibroid Tumors of Ovaries: Report of Case. W. D. Fullerton, Cleveland.
141 Mixed-Cell Tumors of Soft Palate: Report of Case. M. G. Sturgis, Seattle, Washington.
142 *Ascending Infection of Kidneys. J. E. Sweet and L. F. Stewart, Philadelphia.
143 Dental Disorders and Peridental Infections: Their Relation to Neighboring Organs. V. P. Blair, St. Louis.
144 *Primary Carcinoma of Liver in Childhood: Report of Case. O. L. Castle, Kansas City, Mo.
145 *Mobilization of Duodenum. A. H. Kanavel, Chicago.
146 *Pituitary Gland in Its Relation to Epilepsy. G. C. Johnston, Pittsburgh.
147 Product of Hospital. E. A. Codman, Boston.
148 Incrustations of Renal Pelvis and Ureter. Report of Four Cases. J. R. Caulk, St. Louis.
149 Gastric Sarcoma. Report of Case. H. J. Hartz, Philadelphia.
150 *Pathogenesis and Treatment of Hernia of Linea Alba. A. V. Moschcowitz, New York.
151 Arthrotomy of Hip. E. M. Corner, London.
152 *Treatment of Scoliosis. A. M. Forbes, Montreal.
153 *Uterine Endoscopy; Aid to Precision in Diagnosis of Intra-Uterine Disease. A. Heineberg, Philadelphia.
154 Laryngectomy Combined with Gastrostomy. F. Torek, New York.
155 Massive Roentgen Irradiation in Gynecology. H. Schmitz, Chicago.
156 Double Lever Instrument for Open Reduction of Fractures. F. H. Coerr, New York.
157 *Head Injuries. Some Conclusions. W. J. Anderson, Chicago.

133. Abstracted in THE JOURNAL, January 24, p. 328.

134. **Carcinoma of Lower Lip.**—Bloodgood's article is an analysis of about 200 cases. For the details the original should be consulted. Briefly, he says our experience shows that one should make the attempt at the radical removal of the lesion on the lip and glands of the neck at any stage of the disease whether the lesion is primary or recurrent. No necessary mutilation should be shunned. Every now and then one will accomplish cures in apparently desperate cases. This, however, is surgery as a last resort, and such surgery would not be necessary if patients were educated to seek advice early and if the profession were trained to perform the proper operation in this early stage. In fact, we have the evidence here to show that lesions of the lower lip properly excised within one month from their onset should result in almost 100 per cent. of cures. The failures to cure in this group of 200 cases are due not only to delay on part of the patient, but to bad treatment on part of the profession. These two evils can and should be corrected. It is really a very simple matter.

135. Abstracted in THE JOURNAL, Nov. 22, 1913, p. 1928.

137. **Non-Tuberculous Diseases of Bladder and Kidney.**—Attention is called by David to the varying morphologic and cultural characteristics of *B. coli* and allied organisms, and staphylococci found in infections of the bladder and kidney. Anaerobic organisms were present in 20 per cent. of the cases examined in which a growth was obtained and occurred four times in pure culture. Anaerobic organisms are described as follows: a very fine Gram-negative bacillus growing only on blood media; a Gram-negative pigment-producing bacillus, and associated with it a Gram-negative coccus, corresponding to no known described type, *Funduliformis; Staphylococcus parvulus*, and Gram-positive staphylococci.

142. **Ascending Infection of Kidneys.**—An extensive network of lymph-vessels and channels exists in the mucosa and submucosa in the external coats of the bladder and the ureters and in the entire structure of the kidney. This network in the ureter anastomoses freely with the lymphatics of the bladder at the one end and with the lymph apparatus of the kidney at the other end. An ascending infection travels through this lymphatic system, not through the lumen of the ureter. The blood-vessels can be excluded because the veins of the bladder and the veins of the ureter, for the great r part, open into the general venous system, not into the venous system of the kidney. The lumen of the ureter can be excluded, because if the lumen be open to infection, the infectious process is traceable in the lymphatic system, not along the mucosa of the ureter. If the lumen be closed to infection the process extends to the kidney in the usual way; if the lumen be open to infection, but the lymphatics not in contact with virulent infection, as when the ureter is passed through the pancreatic duct, there is no ascending infection; if the lumen be open but the continuity of the lymphatics be interrupted, infection does not ascend; and finally, if the kidney pelvis be directly connected with the gut, the general infection, characteristic of an ascending infection of the kidney, does not occur.

From the point of view of the practical surgeon it would seem that these results would be of service in the consideration of the possibilities of any infectious process involving the lower genito-urinary tract or the pelvic organs in general; certainly the cystoscopist must transfer his attention from the general question of cystitis to the particular one of the local lesions caused by the cystitis, their extent and location. The possibility of the effective local treatment of ulcerated processes of the bladder is also suggestive.

144. **Primary Carcinoma of Liver in Childhood.**—Castle's case was one of pedunculated primary parenchymatous adenocarcinoma of the liver in an infant 10½ months old. It is the first case reported in which complete surgical excision was done. There was a good surgical convalescence, with death sixteen days after operation from symptoms of acute enteritis. No post-mortem examination was made.

145. **Mobilization of Duodenum.**—Instead of the laborious and inexact method of palpation from above, Kanavel turns up the colon, nicks the peritoneum, separates the edges with the index-finger and raises the duodenum with the attached head of the pancreas from its bed. The entire head of the pancreas can be held in the hand and in case of doubt a section removed for microscopic examination. The duodenum can now be rolled up and the site of the entrance of the common gall-duct examined from behind. The mobilization and exposure is so free that in thin individuals, at least, a stone could be removed if it were thought advisable, although Kanavel has not had an opportunity to test it. In the obese, owing to the excessive retroperitoneal fat, the procedure is somewhat more difficult, although Kanavel has used it for examination with satisfaction.

A word of warning is given against violent traction or handling since it is well known that any extensive manipulation of the duodenum and pancreas is conductive to shock, possibly because of their close association with the sympathetic plexus. It has seemed to Kanavel that in the case in which he has exposed the duodenum in the manner the patients described have suffered more shock than is usual after a laparotomy. After the examination is complete a single fine catgut suture closes the rent in the peritoneum.

146. Abstracted in THE JOURNAL, November 1, p. 1659.

150. **Hernia of Linea Alba.**—A small vertical incision is made by Moschcowitz over the center of the so-called hernia. The skin and subcutaneous fat are divided and retracted, thereby exposing a lump of fat. Search is now made for the blood-vessels coming through the hiatus, accompanied by a larger or smaller piece of fat, directly continuous with the fat of the falciform ligament. Usually it is found on the left side of the protrusion, and this vessel is caught and ligated. The fat is now teased apart in order to be absolutely convinced that there is no true sac. The shreds of fat are ligated to obviate a secondary hemorrhage. The ligatures are placed close to the bottom of the hole in the transversalis fascia. The stumps are pushed back into the hole and the latter closed with one or two stitches. Finally the skin is closed in the usual manner.

152. **Treatment of Scoliosis.**—Forbes advocates the rotation treatment for the physiologic reduction of the deformity of scoliosis. The practical application of this form of treatment is best carried out by rotating the patient by means of the arms toward the side of the convexity of the organic (if dorsal) deformity. This may be done while the lower extremities are flexed on an already flexed spine. This attitude is best procured in the recumbent position. Correction having been produced in this manner it must be maintained by the use of a plaster-of-Paris or celluloid jacket. If maintained for a sufficient length of time and under suitable conditions the law of Wolff can be depended on to assure correction of a deformity for the correction of which we are without knowledge of forcible means.

153. **Uterine Endoscopy.**—Heineberg has devised an instrument—the uteroscope or uterine endoscope—which enables one to explore the cavity of the uterus and carefully inspect the entire endometrium. It is not recommended as a panacea for all diagnostic ailments, but as an aid in determining the cause of some uterine diseases of obscure origin. Through its employment Heineberg believes it should be possible to distinguish, with a greater degree of certainty, such pathologic conditions as glandular hyperplasia, uterine polyps, retained products of conception, submucous fibroids and malignant tumors of the endometrium. The microscopic changes occurring in the mucosa during menstruation might also be observed in favorable cases. The uteroscope consists of an endoscopic tube, irrigating attachment and obturator lighting attachment as in Young's urethroscope.

157. **Head Injuries.**—It is Anderson's belief that the expectant plan of treatment for basal skull fracture is the best and that the only indication for decompression with a positive diagnosis of a straight basal fracture is that after the patient has been under observation with the coma and temperature the same the pulse is found to advance from 40, 60 or 80 to 120 or more. Spinal puncture, when used intelligently, accomplishes about as much as a decompression operation in basilar fractures.

Tennessee State Medical Association Journal, Nashville

April, VI, No. 12, pp. 451-500

158 Gall-Calculus or Cholilithiasis. J. B. Haskins, Chattanooga.
159 Chronic Stenosis of Esophagus Due to Simple Inflammation. R. McKinney, Memphis.
160 Treatment of Tabes Dorsalis. A. W. Harris, Nashville.
161 Glaucoma. E. C. Ellett, Memphis.
162 Treatment of Renal, Ureteral and Vesical Calculi. W. T. Black, Memphis.
163 Roentgenograms Showing Bismuth Meal in Normal Individuals Two, Six and Eighteen Hours After Its Ingestion. J. H. Maury, Memphis.

Wisconsin Medical Journal, Milwaukee

March, XII, No. 10, pp. 307-344

164 Acute Ileus—Consideration of Enterotomy and Enterostomy in Its Treatment. E. Quick, Milwaukee.
165 Two Cases of Otitic Brain Abscess Showing the Necessity of Early Mastoid Operation. F. Pfister, Milwaukee.
166 Multiple Tumors of Spinal Cord. Case Report. L. M. Warfield, Milwaukee.
167 Preoperative Treatment of Cardiovascular Disease by Home-Made Nauheim Method to Conserve the After-Lifetime. J. R. McDill, Milwaukee.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

March 28, I, No. 2778, pp. 693-744

1 *Systolic and Diastolic Blood-Pressure Estimation: Special Reference to Auditory Method. J. A. MacWilliam and G. S. Melvin.
2 Systolic and Diastolic Blood-Pressures in Aortic Regurgitation. J. R. Murray.
3 Three Cases of Pancreatic Cyst. H. B. Robinson.
4 *Renal Cyst Causing Chronic Intestinal Obstruction. E. C. Bevers.
5 *Subcutaneous Injections of Emetine in Pulmonary Tuberculosis. J. S. Raeburn.
6 Economical Treatment of Inebriates. A. M. Rosebrugh.
7 Hygienic Aspect of Coal-Mining Industry in United Kingdom. F. Shuilebotham.

1. Systolic and Diastolic Blood-Pressure Estimation.—The auditory method, first suggested by Korotkoff of St. Petersburg in 1905, is endorsed by the authors, as far as systolic pressure is concerned. The chief advantages of the auditory method is that the sense of hearing is substituted for the somewhat more fallible tactile sense. The simplicity, ease, and rapidity of this method are strong points in its favor. It gives all the information that is to be obtained by more cumbrous and time-consuming methods, and that with greater precision, the index being a much sharper one than is present in other methods; it also causes less disturbances to the patient than slower methods, which involve a longer compression with the armlet. It is greatly superior to the palpatory and sphygmographic methods that have been proposed. The authors are convinced that all the evidence as to diastolic pressure gained by the other methods, and much more also, can be better obtained by the quick and simple auditory method. The diastolic estimation in this way is as easy as that of systolic pressure, and is relatively little, if at all, complicated by certain sources of fallacy (for example, state of arterial wall) which may come into question in systolic estimation.

4. Chronic Obstruction Caused by Renal Cyst.—The interest of Bevers' case lies first in the difficulty of diagnosis. The swelling appeared to be cystic and to have a point of attachment in the left lumbar region. The diagnosis made before operation was that of a mesenteric cyst, and even when the abdomen was opened this was the impression given: it was only when the left kidney came into view that the true nature of the case became clear. A renal condition had not been considered, as there was no swelling or resistance in the left loin and the latter area was resonant; also the extreme mobility of the tumor and its obvious intraperitoneal nature seemed opposed to a condition connected with the kidney.

The second point of interest in this case is the chronic intestinal obstruction produced. This, was brought in two ways; in the first place, the splenic flexure of the colon was constricted where it passed round the neck of the cyst, and in the second place, the heavy cyst itself was pressing on the descending colon.

5. Subcutaneous Injections of Emetine in Phthisis.—While Raeburn does not consider that the emetine has any effect on the tubercle bacillus he believes it is a valuable addition to our weapons for reducing congestive conditions in the lungs, and that, therefore, it is both a preventive and curative agent in tuberculosis. He uses ampoules, which contain ½ gram of emetine in 15 minims of distilled water. By diluting this in four parts of water, 1 minim equals 0.04 cg., and Raeburn has come to consider 4 minims of this dilution a suitable dose to give when the object is to control expectoration or lessen congestion.

Raeburn confined himself to cases of hemorrhage. Some of the cases in which he used it had only slight and occasional hemorrhage but copious expectoration, and it was observed that not only did all traces of blood disappear from the sputum, but that the sputum itself decreased or ceased. This observation induced Raeburn to employ the drug in some cases of copious expectoration alone and the results have been sufficiently striking to justify his mentioning them to the profession, in the hope that others will be induced to further investigate the properties of emetine in relation to its effects on congestive and inflammatory conditions of the lungs. He has now used it in over forty cases, and has endeavored to note its effect both on hemorrhage and on expectoration.

Dublin Journal of Medical Science

March, III, No. 507, pp. 161-240

8 Lacerations of Perineum and Their Treatment. E. H. Tweedy.
9 Fatality after Salvarsan. G. E. Nesbitt.
10 Case of Fatal Anemia. G. Peacocke.

Indian Medical Gazette, Calcutta

March, XLIX, No. 3, pp. 85-128

11 Emetine and Treatment of Amebic Dysentery and Hepatitis Including Liver Abscess. L. Rogers.
12 *Series of 101 Cases of Abscess of Liver. E. O. Thurston.
13 Operative Treatment of Hepatic Abscess. E. A. R. Newman.
14 *Emetine and Liver Abscess. A. H. Nott.
15 Emetine in Amebic Dysentery. D. Munro.
16 Amebic Dysentery in Darjeeling District and Its Treatment. C. Baldwin.
17 *Treatment of Liver Abscess. J. D. Sandes.
18 *Emetine and Ipecacuanha: Their Amebacidal Value in Pathogenic Amebiasis. R. M. Carter.
19 Emetine in Hepatitis and Amebic Abscesses of Liver and Spleen. K. K. Chatterji.
20 *Experience in Use of Emetine in Treatment of Amebic Dysentery. A. Whitmore.
21 Emetine Treatment of Dysentery and Allied Liver Conditions in Kathiawar. A. Hooton.
22 Employment of Emetine in Dharwar District. C. T. Hudson.
23 Three Cases of Dysentery Treated with Emetine. E. C. G. Maddock.

12. Abscess of Liver.—Of 35 patients with liver abscess treated by Thurston with ipecacuanha, 21 were only aspirated: of these 17 were cured, four died. Five patients were treated by aspiration followed by drainage; of these 3 were cured and 2 died. Nine were treated by drainage alone; among them 5 were cured and 4 died. The results are therefore largely in favor of aspiration alone. Of 32 patients treated with emetine, 27 were subjected to aspiration alone; of these 20 recovered and 7 died; 2 were dealt with by aspiration followed by drainage; 1 patient was cured, the other died. Patients treated by drainage alone were 3; of these all recovered; these were all abnormal cases. Adding together these two series of cases, we get for aspiration alone a total of 48 cases, of which 37 patients were cured and 11 died, i. e., a percentage mortality of 23 per cent. For aspiration, plus drainage 7 cases with a mortality of 3, i. e., 43 per cent. Of 12 cases treated by drainage alone, 4 died, a mortality of 33 per cent., a verdict very much in favor of aspiration alone.

As to the value of the injection of quinin solution into the abscess cavity, 14 patients were treated by this method; of these 11 were cured and 3 died, or a percentage of 78.57 per cent. and 21.42 per cent., respectively. Cases without quinin numbered 33 with 25 cures and 8 deaths, a relative percentage of 75.7 per cent. and 24.3 per cent. Thurston's impression is that cases treated with quinin were more likely to require a second aspiration. His present practice is to inject a grain of emetine hypodermically immediately after the aspiration. At this time there is presumably a flow of serum, etc., toward the abscess cavity owing to the loss of pressure produced by the removal of the pus and the emetine is more likely to attack the young and active amebae in the advancing wall of the abscess which are a more important factor than those on the inner side.

Thurston urges to aspirate repeatedly in preference to drainage, and if an abscess is almost pointing do not aspirate there, for leakage will probably take place through the puncture, with the almost certainty of another infection being added. In cases in which one has eventually to drain, make a small incision through which a portion of a long rubber tube is inserted and then closely stitched to the skin incision. The other end of the tube is placed in a bottle filled with lotion by the side of the bed and the pus will then syphon over and there is very much less risk of septic infection. No special apparatus is at all necessary. In cases of doubtful diagnosis when a liver abscess has been opened by mistake Thurston has recently been scrubbing out the cavity with gauze and then suturing completely; all the cases so treated broke down after healing by first intention, but the cure was certainly hastened.

14. Emetine and Liver Abscess.—In Nott's opinion aspiration is called for in that very serious class of large acute liver abscesses with acute dysenteric symptoms and grave general depression and the earlier this is performed the better. He is convinced that drainage with excision of a portion of a rib in this class of case is a very fatal procedure. He advocates repeated aspirations with the exhibition of emetine both subcutaneously and into the cavity of the abscess after aspiration, though probably the former alone is equally efficacious and more certain. This procedure in some cases will be sufficient to bring about recovery, in others it will enable the general strength to be recuperated, the fever to largely subside and it may be possible after several aspirations to drain by the open method with some chance of success.

For large single abscesses of a less acute character seen in a later stage and in patients in reasonable condition, Nott would aspirate at least once, but thinks that under good conditions as regards maintenance of asepsis there is a good deal to be said for immediate incision and drainage. For smaller superficial abscesses such as those met with in the left lobe of the liver, if diagnosed in an early stage he would aspirate, in a later stage when the skin is involved he would incise.

17. Treatment in Liver Abscess.—Aspiration is Sandes' method of choice and he says should always be attempted even in apparently desperate cases. The puncture should be made in the posterior axillary line as high up as possible. No general anesthetic should be given and 1 grain of emetine should be injected hypodermically while the patient is in the operating-room. Incision and drainage should be performed for the abscesses of the left lobe and abscesses that are pointing, particularly if there is no great general enlargement of the liver. Free drainage by large rubber tubes should be provided. A combination of these methods is indicated when aspiration has not effected a cure.

18. Emetine and Ipecacuanha.—Carter's experience of abscess formation in amebic hepatitis leads him to consider it advisable always to suspect all cases of chronic pyrexia of uncertain origin with leukocytosis occurring in the tropics as being of the nature of amebic hepatitis and to treat them accordingly. By emetine treatment he considers it is possible not only to cure amebic dysentery giving rise to liver abscess viâ amebic hepatitis, but to check abscess formation in its earliest stages.

He finds on the other hand, that once a liver abscess has formed, the value of emetine has ceased and operative measures are alone sufficient. He has not noticed any marked curative acceleration of the condition of an amebic abscess after drainage due to amebacidal action of the alkaloid. In such cases, however, he occasionally administers emetine alone where there is any difficulty in drainage of the wound, to prevent amebal invasion of the external wound that rarely occurs.

Emetine treatment being a more rigorous and scientific administration of the specific amebacide, tends to diminish the number of ameba carriers in a community. If the drug is administered in the early stage of pathogenic amebiasis in sufficiently lethal doses it has a high economic value to the state, reducing the further incidence of amebiasis.

In a series of 150, the average total dosage of emetine to cure a case was 3½ grains and 2 grains, respectively. Of the patients that died, the average duration of the disease before the patient sought hospital treatment was forty-four and one-half days. The average total emetine given before death was 4¼ grains. The dose varied from ½ grain per diem to 1 grain per diem. All patients received pulv. ipecac 15 to 30 grains three times a day in salol-coated pills; these were given half an hour after taking 15 to 20 minim of tinct opii. Other drugs used were bismuth salicylate, bismuth subnitrate given in conjunction with tannic acid and catechu.

20. Emetine in Dysentery.—In the thirty-four cases with which Whitmore's paper deals the treatment adopted has been injection of emetine, generally in ½-grain doses twice a day, until the stools are reduced in frequency to two or three in twenty-four hours, and are free from mucus and blood; so that on a careful microscopic examination the stools appear to be normal, soft stools, save perhaps for some undigested food material.

In the majority of the thirty-four cases acute dysenteric symptoms have ceased and the stools assumed a normal character after four or at the most five days of hypodermic emetine treatment. For the rest of their stay in hospital the patients are given small doses (grains x to xv) or pulv. ipecac., twice or three times a day, unless treatment for some other disease such as malaria is required.

Lancet, London

March 28, I, No. 4726, pp. 877-946

24 *Physiology and Pathology of Uterine Hemorrhage. H. B. Whitehouse.
25 Anesthetics and Diagnosis. J. Blumfeld.
26 *Operations for Hemorrhoids: Review of 850 Cases. A. Neve.
27 Effects of Drinking-Water on Causation of Dental Caries in Schoolchildren. J. B. Cook.
28 Case of Malarial Coma Lasting Forty-Six Hours: Recovery. A. G. Tresidder.

24. Uterine Hemorrhage.—The experiments by Whitehouse appear to show that the uterine secretion in rabbits, at least, is under the control of the ovaries both as to amount and physiologic action. The normal secretion apparently aids coagulation of the blood—a point of interest when it is remembered that proestrum in this animal is not associated, as a rule, with external hemorrhage. The secretion also appears to stimulate estrum. Bond's experiments have shown that when the fluid is pent up, as in artificial hydrometra, estrum is frequent and prolonged, and his investigations tend to confirm Bond's observations. It appears possible, therefore, that uterine secretion, stimulated and controlled by an ovarian hormone, is partly absorbed and produces that dilatation of vessels which is characteristic of the late stages of proestrum and immediately precedes estrum. Whether this is the case with the human female, Whitehouse says it is only possible to surmise, but with the close analogy of menstruation to proestrum it is certainly possible. At the same time, clinical experience has shown that a period of estrum or sexual desire may occur in human species quite independently of both uterus and ovaries, as is the case when these organs have been removed singly or together at an early period of married life.

Concerning heterogeneous extracts prepared from the uterine endometrium and from the ovarian stroma and corpus luteum Whitehouse has been unable to satisfy himself that these have any effect in stimulating the onset of estrum or in accelerating menstruation. In six women who received intramuscular injections of these extracts during the premenstrual period, no alteration was noted either in the duration of the cycle or length of the actual menstrual period. Whitehouse is convinced, however, that there is ample evidence available to show that normal proestrum and menstruation are under the control of the ovary and its associated endocrinous glands.

26. Operation for Hemorrhoids.—Comparing the three chief methods of operations Neve considers that the clamp is suited for all cases but that the very slight and pedunculated cases are as well treated by ligature, excision and suture. His experience of Whitehead's method is limited to twenty cases. He has no use for it. He says it is obviously only needed in the more severe cases with piles all round the circle. In his last 500 cases many very severe and affecting the whole pile-bearing area, he has failed to see one which could not be adequately treated by the clamp and cautery. He emphasizes the importance of the following details: The anus should be very thoroughly dilated and this should occupy at least four minutes by the clock. Each pile should be gripped with a suitable catch forceps and drawn down and out by an assistant. Beginning at the top pile the clamp is applied and screwed very tight. If there are only two or three not bulky piles it is applied with the blades longitudinal to the rectum—gripping high up the pedicle, crushing into a line or strip 1½ inches long, then cutting off with curved scissors and very thoroughly cauterizing with the actual cautery, used almost, but not quite red hot. Each pile should take at least two minutes to crush and burn. After the clamp is released care should be taken not to drag on the wound and pull it open. If piles are protruding and inflamed or thrombosed it is often practicable to apply the clamp parallel to the anus, thus bringing the rectum down into apposition with the margin. If the piles are

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numerous and large, Neve prefers to crush some in a longitudinal and the alternate ones in a horizontal direction so as to prevent the contraction and yet remove efficiently. The parts are then gently pressed up. At night in perhaps 10 per cent. of the cases the catheter is required, but almost never subsequently. On the fourth day a dose of castor oil is administered.

Annales de Médecine et Chirurgie Infantiles, Paris

March 15, XVIII, No. 6, pp. 177-212

29 Need of "Social Service." (A propos de dépopulation.) E. Périer.

30 Paratyphoid Bacillus Infection in Infant. L. Lagane.
31 *Neosalvarsan for Infants with Inherited Syphilis. (100 injections par les veines jugulaires et épicraniennes chez des nourrissons et des enfants du premier âge, appliquées au traitement de la syphilis héréditaire.) G. Blechmann.
32 Correction of Undescended Testicle. (Orchidopexie crurale dans le traitement chirurgical de l'ectopie testiculaire inguinale.) M. Ayguesparsse.

31. Intravenous Treatment of Inherited Syphilis in Infants.—Blechmann reports that injections of a solution of neosalvarsan into the jugular or temporal veins are easily made, even on small infants, and have a remarkable curative action. He injects less than 0.01 gm. per kilogram at first and gradually increases to a final dose of 0.01 gm., making the injections at intervals of one or two weeks, in series of five or seven injections, then suspending them for a period of six or seven weeks and then commencing anew. In nearly all infants the external jugular vein is prominent, especially during inspiration and when the child cries. The veins in the scalp, particularly the temporal veins, are unusually prominent with inherited syphilis and can be utilized for the injection, but are less convenient. He has made a hundred such injections and all without by-effects, except in one instance a syncopal condition developed at the second injection, but the child rapidly recovered under camphorated oil and epinephrin and showed no further ill effects. He has never found it necessary to expose the vein for the purpose. He says of the curative effect that it was remarkably successful.

Archives des Maladies de l'Appareil Digestif, Paris

February, VIII, No. 2, pp. 61-120

33 *Study of Movements of Intestines by Perfusion with Locke's Fluid. R. Glénard.
34 Paroxysmal Total Contraction of Stomach; Part of Contents Flung into Esophagus and Vomited or Not at Will; Cancerous Pyloric Stenosis Found at Operation. A. Mathieu.

33. Study of Isolated Perfused Intestine.—Glénard gives an illustrated description of the technic with which he isolates the small intestine in rabbits and keeps it functioning apparently normally by forcing Locke's fluid continuously through its vessels. The bowel keeps functioning for several hours and its movements can be recorded by the moving picture apparatus and its behavior under the influence of various physical, chemical and other factors, applied to the peritoneal surface or the lumen or in the circulating fluid. Conditions seem to be approximately normal except that the movements proceed faster than usual, probably owing to the absence of inhibiting influences. Most purgatives proved equally efficient whether they were deposited in the lumen of the bowel or injected into the circulating fluid; magnesium sulphate seemed to paralyze the bowel.

Archives de Médecine des Enfants, Paris

March, XVII, No. 3, pp. 161-240

35 *Evolution of Surgical Tuberculosis in Infants. Froelich.
36 Vaccination against Scarlet Fever. M. de Biehler.
37 Vulvovaginitis in Children. J. Comby.

35. Surgical Tuberculosis in Infants.—Froelich remarks that in general surgical tuberculous processes develop in infants about the same as in older children, but they have a few special features, especially a tendency to hypertrophy in bone and joint affections, and the process opens and sloughs off unusually early. The fistula period is very short. In infants the process is frequently in the shaft of the bone, while in older children the epiphysis is almost invariably attacked. When the hip-joint is involved, dislocation occurs early in infants. In the knee and occasionally in the elbow an acute form of tuberculous arthritis may develop in infants; it runs a rapid course and heals soon after evacuation of the pus, leaving very little stiffness. When an infant has a surgical tuberculous process in the bones, it often affects several bones at once, but this does not seem to render the prognosis graver.

In differentiation the main point is to exclude syphilis and the staphylococcus. The lesions heal more rapidly and in greater number as the infants grow older; the mortality is about 10 per cent. Tuberculous lymph-nodes run an acute course and leave scarcely any trace. Tuberculous processes in the viscera and peritoneum run the same grave course as in older children. Under other conditions the tendency to spontaneous healing should render the surgeon conservative in his treatment much more so than in older children. The testicle is so often the seat of a tuberculous process that this may be regarded as a special privilege of infancy. The entire gland may be invaded but the prostate escapes.

Presse Médicale, Paris

March 14, XXII, No. 21, pp. 201-212

38 Leprosy in Rats. E. Marchoux.
39 Diagnosis of Leprosy. L. M. Pautrier.
40 Syphilis as Factor in Disease of Aorta. (Du rôle étiologique de la syphilis dans les aortites chroniques avec ou sans insuffisance aortique et dans la néphrite hydrurique.) C. Lian and A. Vernes.

March 18, No. 22, pp. 213-220

41 History and Clinical Experience of Kala Azar. C. Nicolle.
42 Abbott's Method of Treating Curvature of the Spine. J. Calve.

March 21, No. 23, pp. 221-228

43 Deformities and Rachitis in Rabbits Born of Thyroidectomized Parents. (Rachitisme et dystrophies osseuses observés chez de jeunes animaux nés de procréateurs éthyroïdés.) H. Claude and J. Rouillard.
44 Organ-Cell Producing Property of Cancer Cells. (Puissance organogénique de la cellule cancereuse.) M. Letulle.

Revue de Gynécologie, Paris

February, XXII, No. 2, pp. 81-160

45 *Present Status of Hysteropexy. (Les hystéropexies actuelles et le lieu d'élection pour le passage intrapariétal des ligaments ronds dans l'opération de Doléris.) G. Rouhier.
46 Aberrant and Remote Fibromas Originating in the Uterus; Two Cases. Goullioud.

45. Fixation of the Uterus.—Rouhier protests against all methods which fasten the uterus directly, or which are applied without having the abdomen open before one. He says that the principle of transperitoneal fixation of the round ligaments is superior to all others, but cases are on record in which this principle, applied according to Doléris' technic, entailed sudden hemorrhage or strangulation of the bowel. Analysis of the case shows, however, that the trouble is due to the method having been applied in the face of contra-indications such as genital prolapse. Study of conditions on the cadaver and at operations has shown that all such by-effects can be avoided by drawing the round ligaments through the space between the two tendons of the rectus below. It is easily found and it is plugged by adipose tissue which readily yields to the transfixing forceps. At this point there are no vessels to be injured; it is best reached through a transverse suprapubic incision.

Berliner klinische Wochenschrift

March 16, LI, No. 11, pp. 481-532, Ehrlich-Behring Number.

47 *Medicine and Science. C. Richet.
48 Reminiscences of Introduction of Antitoxin. O. Heubner.
49 Student Days with William Welch. (Lebenserinnerungen aus dem Breslauer Sommersemester 1877.) C. J. Salomonsen.
50 Is Smoking Harmful? (Ist das Rauchen schädlich?) P. K. Pel.
51 *Treatment of Syphilis. E. Lesser and von Zeissl.
52 Free Lipoids Demonstrated in Serums by Activation with Cobra Venom, Especially in Tuberculosis. A. Calmette.
53 Lipoids as Factor in Coagulation of the Blood. J. Bordet and L. Delange.
54 Metachromatic Bodies in Acid-Resistant Bacilli. V. Babes.
55 Transformation of Diphtheria Bacilli. P. H. Römer.
56 Epidemiology and Pathology of Poliomyelitis. S. Flexner.
57 Present Condition of a Two-Years' Old Strain of Connective Tissue. A. Carrel.
58 Application of Certain Cultivation Methods to the Study of Infectious Diseases. H. Noguchi.
59 The Lack of Stability of Conditional Reflexes. (Die bes. Labilität der inneren Hemmung bedingter Reflexe.) J. P. Pawlow.
60 Roentgentherapy of Rhinoscleroma. (Ein mit Vaccin erfolglos behandelter und durch Anwendung physikalischer Behandlungsmethoden gebesserter Fall von Scleroma respiratorium der Nase und des Rachens.) H. Mestscherski and F. Grintschar.
61 Parotitis Secondary to Gastric Ulcer. (Akute Entzündung der Ohrspeicheldrüse im Anschluss an Unterleibsaffektionen.) S. Laache.
62 *Presenile Involution of Mammary Gland. E. Hedinger.
63 Pathogenesis of Urticaria. J. Jadassohn and L. Rothe.
64 *Pains from Compression of Nerves by Varicose Veins. (Phlebogene Schmerzen.) L. Edinger.

65 *Vaccination against Tuberculosis. (La vaccinazione preventiva per immunizzare l'uomo contro la tubercolosi.) E. Maragliano.
66 Substance Causing Wassermann Reaction a Product of the Lymphocytes. A. v. Wassermann and C. Lange.

March 23, No. 12, pp. 533-589

67 *Salvarsan Alone in Treatment of Syphilis. (Reine Salvarsantherapie.) W. Wechselmann.
68 *Fundamental Problems in Treatment of Syphilis. A. Blaschko.
69 Modern Treatment of Recently Acquired Syphilis. F. Bodländer.
70 The Breslau Epidemic of Infectious Erythema. L. Tobler.
71 *Splenectomy in Pernicious Anemia. F. Port.
72 Operative Treatment of Paralysis. (Zur Lähmungstherapie.) G. A. Wollenberg.
73 *Kidney Disease and Tuberculosis. (Nierenkrankheiten und Tuberkulose.) W. Karo.
74 New Hemoglobin Scale. (Hämoglobinbestimmungsmethoden.) N. L. Petersen.

47. **Medicine and Science.**—In congratulating Ehrlich on his sixtieth birthday Richet remarks that the philosophical conclusion that can be drawn from Ehrlich's work is the necessity for medicine to depend on the experimental sciences to make progress. The clinic in the special case always has the last word. The physician, the surgeon, the obstetrician, the ophthalmologist have no right to neglect what old empiricism has taught them and what they learned under their professors. But if they want to do still better, unearth some new truth or discover some new remedy, they must interrogate living nature and get experiences outside of their clinical practice.

51. **Syphilis.**—Lesser recalls that it is only eleven years since syphilis was first transmitted to animals, and only nine years since the causal germ was discovered, then the Wassermann reaction and then salvarsan four years ago. Medicine has no other such a seven-year record in its entire history. We are able now, he says, to abort the disease and to determine with the Wassermann reaction when the cure is complete. By curing it up quicker the infection of others is prevented and thus we have advanced a long way toward the goal of eradicating the disease. He says of Mentberger's compilation of eighty-seven deaths for which salvarsan seemed to be directly responsible, that this is a very small number in comparison to the thousands who have been treated with salvarsan, even admitting that not all of the fatalities have been published. In these cases, neither the phase of the syphilis nor the constitution of the patients nor the dose of the salvarsan has thrown any light on the fatality, and we are still entirely in the dark as to the cause of the fatal outcome. Two in the list did not have syphilis, and in 33.3 per cent. the fatality followed the first injection of salvarsan so there could not have been any cumulative action. He further emphasizes that defective technic can also be positively excluded. He had a patient present the same train of symptoms, paresthesia, headache, vomiting, convulsions and coma, but venesection and repeated infusion and enemas of salt solution tided him past the danger point and he recovered. He advises saline infusion in all cases showing even slight disturbance after salvarsan. Milian has reported benefit from epinephrin injected subcutaneously when there were symptoms suggesting pressure on the brain after salvarsan. Mentberger's compilation included a further group of 187 fatalities in which salvarsan was only the indirect or immediate cause. Thirty-nine of the patients were non-syphilitics; in some of the others there was an excessive reaction in some vital organ affected by the syphilis.

Von Zeissl has never had any mishaps in his experience with 1,000 patients treated with salvarsan, and ascribes this to his careful preliminary examination of the entire body, especially heart, kidneys, liver and fundus of the eye, refraining from giving salvarsan if anything is found wrong outside of the syphilis. He graduates the dose to the age, sex and weight, and keeps the patient in bed for a day or two afterward, regulating the diet to permit nothing incompatible with arsenic. The interval between injections should never be less than eight days and the patients should be kept under conscientious supervision for two or three years. He always dissolves the salvarsan in distilled water and prepares it as short a time as possible before it is administered. Another point on which he insists is that mercury and salvarsan should never be given at the same time. As an illustration of the necessity for discrimination in selecting patients for treatment with salvarsan, he says a certain woman was impatient to be relieved of a papulous syphilid which was yielding very slowly to mercurial injections. She insisted on being given salvarsan, but von Zeissl temporized and refused, telling her that she was too much debilitated, ordering a course of tonics, promising to give her the salvarsan as soon as she had gained in weight. An hour later she developed fatal hemiplegia.

62. **Presenile Involution of the Breast.**—Hedinger reports five cases in which the breast was removed on account of chronic local pain, and nothing was found to explain it except signs of presenile involution.

64. **Neuralgia from Hidden Varicose Veins.**—Edinger reports three cases in which sciatica or rheumatism had been diagnosed from the chronic pain, but years of treatment had failed to relieve the pain. Then treatment was applied on the assumption that the nerve was suffering from pressure from some enlarged vein, and benefit was at once apparent. An elastic stocking gave the desired relief, with or without first lifting the leg to expel the blood.

65. **Vaccination against Tuberculosis.**—Maragliano here brings down to date his report of his work in this line which has been repeatedly mentioned in THE JOURNAL. He says that the technic and method in general is exactly like that of vaccination against small-pox, and that years of experience have demonstrated its harmlessness, while prolonged control of the vaccinated has proven its efficacy. They were vaccinated because their environment exposed them particularly to infection, and none of 465 traced to date has developed tuberculosis. The Maragliano method was discussed at the Tuberculosis Congress at Washington, as reported in THE JOURNAL, Oct. 7, 1908, p. 1360.

67-68. **Salvarsan Alone in Syphilis.**—Wechselmann remarks that the last four years have brought us farther on the road to the complete cure of syphilis than four centuries of mercury, and he now discards the latter altogether, pinning his faith to salvarsan alone, as already mentioned editorially, p. 1175. He describes the present condition of some of the first patients to whom he gave salvarsan treatment; everything seems to indicate that they are permanently cured. Blaschko discusses a number of important phases of the syphilis problem and states that we must now devote all our energies to perfecting the diagnosis of syphilis in the very earliest stages so that we can nip it in the bud, and also perfect our clinical, serologic and chemical knowledge so that we can recognize the slightest signs of a syphilitic affection in any organ and, last but not least, keep scrupulously exact case-histories regarding the effect of the various measures applied in treatment. This is a long and tedious task, but it is the only way to be sure.

71. **Splenectomy in Pernicious Anemia.**—Port's patient was a man of 31 whose blood had the typical features of the pernicious type even between the exacerbations. The spleen was removed and although there had been considerable loss of blood, it weighed 432 gm. Improvement followed until now, three months later, the hemoglobin is 77 per cent., the reds number 3,556,000, and the leukocytes 9,500, while there are not many Jolly bodies; at first they were extremely numerous.

73. **Tuberculosis of the Kidneys.**—Karo cites statistics to show that the kidneys become involved in fully 50 or 53 per cent. of the cases of tuberculous foci elsewhere, while tuberculosis is often an important factor in amyloid degeneration of the kidneys. When amyloid degeneration develops in the course of tuberculosis elsewhere, the prognosis is absolutely bad. The same may be said of any involvement of the kidneys with acute or subacute general miliary tuberculosis. Even when all the symptoms have subsided and the patient is apparently completely cured, the kidney trouble may flare up again and prove speedily fatal. It is still a question whether tubercle bacilli can be eliminated through a sound kidney.

Deutsche medizinische Wochenschrift, Berlin

March 19, XL, No. 12, pp. 577-624

75 Dilatation of the Aorta in Heller-Doehle's Aortitis. F. Kraus.
76 Tuberculosis and Gold Cantharidin. G. Spiess and A. Feldt.
77 Vaccination against Diphtheria. (Prophylaxe der Diphtherie nach v. Behring.) J. Bauer.
78 Influence of Weak Electric Current on Rat and Mouse Cancer. Seyderhelm.

79 *Sterilization of the Mouth with Ultraviolet Rays. E. Friedberger and E. Shioji.
80 *The Meiostagmin Reaction. R. Roosen and N. Blumenthal.
81 *Serodiagnosis of Cancer and Tuberculosis. (A. R. bei Karzinom und Tuberculose.) E. Fränkel. (Epiphanineaktion bei Krebskranken.) E. Jozsa and M. Tokeoka.
82 Tubercle Bacilli in the Blood of no Diagnostic Import. Baetge.
83 Diphtheria Bacilli May Penetrate All the Organs. Liedtke and Völckel.
84 History of Antitoxin Treatment of Diphtheria. (Wandlungen der spezifischen Bekämpfung der Diphtherie.) W. G. Ruppel. Commenced in No. 11.
85 Nasal Diphtheria in Infants. (Klinische Bewertung der Bakterientypen bei Nasendiphtherie.) W. Buttermilch.
86 Saponold in the Blood Serum. (Unbekannte Substanz im Blutserum des Menschen und einiger Tiere.) W. Frieboes.

79. **Disinfection of the Mouth with Ultraviolet Rays.**—Friedberger and Shioji report research which confirms the strong bactericidal action of the ultraviolet rays. With them it is possible to sterilize vaccine so that no chemical disinfectant is required. When applied inside the mouth of a rabbit previously infected with various germs, the germs were rapidly killed. It is possible, they suggest, that this method might prove a means to eradicate diphtheria bacilli from the throats of chronic carriers, also to sterilize the throat, teeth or vagina.

80. **The Meiostagmin Reaction.**—This test was applied in a total of 168 cases and it elicited a positive response in 98 per cent. of the cancer cases, but a number of other affections gave a positive response also. This shows that while a negative response is strong evidence against carcinoma (not sarcoma), positive findings do not testify conclusively to cancer.

81. **Serodiagnosis of Cancer and Tuberculosis.**—Fränkel writes from the cancer research institute at Heidelberg to state that neither with cancer nor with tuberculosis were reliable results obtained with Abderhalden's method of serodiagnosis. Jozsa and Tokeoka state that in their application of the epiphanin test to seventy-two different serums, positive findings were obtained in 81.5 per cent. of the cancer cases while it was overwhelmingly negative in the non-malignant cases. The principle of the test was described in THE JOURNAL, 1913, lxi, 788.

Deutsche Zeitschrift für Chirurgie, Leipsic

February, CXXVII, Nos. 1-2, pp. 1-208

87 *Disease of the Lymphatic Vessels. (Die Lymphstauung und ihre Produkte.) H. Gross.
88 *Treatment of Granulating Wounds with Hot Air. (Die Behandlung granulierender Wundflächen mit getrockneter Luft; Siccor-Apparat von R. Kutner.) H. Poth.
89 Complete Restoration of Clavicle with Bone Flap. (Vollständige Wiederherstellung des Schlüsselbeins mit Hilfe der freien Knochenplastik.) S. F. Tschisch.

87. **Disease of the Lymphatic Vessels.**—Gross' article on lymph stasis and its products fills 168 pages. He regards lymph cysts and chyle cysts as well as lymphectasia of any kind as the local product of a general overloading of the blood-system. His compilation of 120 cases shows such a coincidence of various cardiovascular disturbances that it is impossible to accept the association as casual. When the circulation is impeded from any cause, especially when the blood-vessels are abnormally narrow, the lymphatics are called on to relieve the overfilled venous system, and the lymphatics stretch under the influence of the wave of blood that rushes into them and forces back the lymph.

88. **Hot Air in Treatment of Wounds.**—Kutner noticed that in places with low humidity, wounds heal exceptionally quick and he applied this principle in aseptic treatment of granulating wounds by playing a jet of hot air on them. Poth gives here the details of fifty-two cases in which this method was applied, with what he calls ideal results. The only objection is that the Kutner apparatus for the purpose is expensive. It heats and cleans the air and is applied for three-quarters of an hour once a day.

Medizinische Klinik, Berlin

March 22, X, No. 12, pp. 487-528

90 Roentgen and Radium Therapy in Gynecology. H. Peham.
91 The Causal Agent of Small-Pox. (Die Aetiologie der Variola-vaccine und die neueren Forschungen über den Pockenerreger.) L. Unger. Concluded in No. 13.
92 Familial and Inherited Ataxia. Vorkastner. Commenced in No. 10.
93 *Psychoses and Menstrual Disturbances. A. Passow.
94 *Practical Aspect of Spastic Ileus. A. Fromme.
95 Protective Ferments in the Urine. V. Kafka.
96 Diagnosis of Constitutional Anomalies between 20 and 50. (Diagnose der Konstitution.) V. Baar.

93. **Reciprocal Relations Between Psychoses and Menstrual Disturbances.**—Passow traces the history of this subject back to Hippocrates, and then relates a number of clinical points learned in his long years of service in a sanatorium for nervous diseases. He has noticed, for instance, that the patients brought in are almost always entering on a menstrual period. He also reports the case of a previously healthy and happy mother of several young children who passed through a period of grief, with fatigue from a long journey, and developed what seemed to be acute mania for two days. Then menstruation came on and after sleeping fourteen hours she was completely restored, with no memory of her period of excitement and no recurrence of the psychosis during a number of years to date. The emotions which most frequently cause suspension of the menses seem to be the fright at a fire, and when an unmarried woman believes that conception has occurred. Passow has always found amenorrhea in a psychosis a grave omen.

94. **Spastic Ileus.**—Fromme says that only twenty cases are on record in which spastic ileus caused disturbances of such gravity that operative treatment was required. Time should not be wasted on conservative measures unless the symptoms are mild or the patient is known to be subject to severe hysteria. When this is the case, sedatives, morphin, atropin in small doses may be tried. Purgatives are directly contra-indicated but the bowel can be flushed from below. When the abdomen is opened and mechanical stoppage of the bowel can be excluded, we can suture the incision with confidence that the spasm will subside spontaneously under the influence of the operation or with the aid of sedatives. With threatening symptoms, an opening into the bowel above may have to be made. In one such case in which the spastic ileus developed after an operation, eight weeks passed before the bowel relaxed and the fistula above could be dispensed with. Spasm of the bowel is often a factor in invagination. At necropsy of one child who had died with symptoms of ileus, he found that the spasm of the bowel still persisted.

Münchener medizinische Wochenschrift

March 17, LXI, No. 11, pp. 577-632

97 *Extension in Joint Disease. (Gelenkextension.) H. v. Baeyer.
98 Serodiagnosis of Tumors. (Klinische Studien mit dem Dialyserverfahren nach Abderhalden. II.) H. Oeller and R. Stephan.
99 Deformity of Mammalian Eye. (Entstehung angeb. Anomalien und Missbildungen im Säugetierauge.) H. E. Pagenstecher.
100 Action of Copper plus Methylene Blue on Tubercle Bacilli. v. Linden.
101 Cataract Destructive Process a Ferment Action. M. Hoffmann.
102 *Slow Endocarditis Due to Mic. Flavus. H. Kämmerer and R. N. Wegner.
103 Classification of Spirochetes. (Stellung der Spirochäten im System.) Meirowsky.
104 *Operative Resoration of Function of Ankylosed Joints. (Gelenkmobilisierung.) O. Vulpius.
105 *Diagnosis of Peritonitis in Young Children. R. Drachter.
106 Circular Suture of Blood-Vessel. (Klinischer Beitrag zur Bewertung der zirkulären Gefässnaht.) H. Flörcken.
107 Disorders in Children by Imitation and Induction. A. Strauch (Chicago).
108 Modified Technic for Abderhalden's Serodiagnosis. S. P. Swart and A. J. L. Terwen.
109 *Prophylaxis of Diphtheria. Bachauer.
110 Do We Give Drugs Too Often? (Krücken oder Beine? Angewöhnung und Abgewöhnung von Heilmitteln.) E. Bleuler.

97. **Extension in Treatment of Joint Disease.**—Baeyer reviews the causes which cooperate in the benefit from extension, analyzing the mechanism. The extension reduces the pressure of the articulating surfaces on each other; keeps the joint in repose; changes the points of contact; prevents the soft parts from protruding into the joint; prevents or cures contracture; relieves pain and fever, and brings serum into the joint in larger amounts, but the chief benefit from the extension is the hyperemia which it induces in the soft parts, articulating surfaces and bones forming the joint. Hyperemia follows later in the stretched muscles after the extension stops.

102. **Slow Endocarditis.**—A young lawyer had long had aortic insufficiency but it had never caused disturbance until he developed a febrile state with night sweats. The fever was of a remittent type and persisted after the chronically inflamed tonsils had been removed. Treatment on the basis of chronic endocarditis gave little relief and necropsy after intercurrent fatal pneumonia revealed typical suppurating "endocarditis

lenta," but instead of the *Streptococcus viridans* being found as the causal agent, the *Micrococcus flavus* proved to be responsible. The case is illustrated, the comment being that this is the first instance on record in the literature of this common saprophyte displaying pathogenic properties. Nothwithstanding the extremely slow course of the endocarditis, the microbes swarmed in blood and heart.

104. **Operative Mobilization of Stiff Joints.**—Vulpius gives a number of illustrations showing the excellent functional results several years after an operation on ankylosed shoulders, knees or hip-joints. He operates through a bilateral incision, carves the articulating surfaces to the desired shape with delicate files and saws, and interposes large pedunculated flaps of fascia, not only covering the raw surface of the femur, for instance, but underpadding the patella. He gives an illustrated description of one case in which recent reexamination, years after, showed ideal results although the hip-joint had been previously ankylosed for over twenty-five years. He says that the two cases of severe and painful ankylosis of both hips which show such excellent results years after, justify operative measures for all chronic joint processes entailing ankylosis.

105. **Diagnosis of Peritonitis in Young Children.**—Drachter states that a young child was brought for an operation for appendicitis and peritonitis; everything seemed to justify this diagnosis except that when he lifted the child's stretched right leg and struck the sole, there was no sudden aggravation of the pain such as almost invariably causes the child to scream or grab his right flank when the peritoneum is really inflamed. He has found this a very instructive aid in differentiating peritonitis. The child in question had incipient pneumonia on the right side.

109. **Prophylaxis of Diphtheria in the School.**—Bachauer describes the arrangements in vogue at Augsburg and states that no new cases developed after they were applied. Children with diphtheria and also all children from the same family are excluded from the school until their throats are found free from diphtheria bacilli on several examinations. When several cases develop after each other in a schoolroom the above measure is applied also to all the children whose throats show signs of inflammation. If cases still develop in the schoolroom, then smears are taken from the throats of all the children, thus trying to detect any bacilli-carriers. In case such are found they are treated as above as if they had diphtheria. In 1913 there were 495 cases of diphtheria among the schoolchildren and the throats were found sterile one or two weeks after diphtheria in about 10 per cent.; after three weeks in 17 per cent.; after six in 17; after seven in 12 and after ten in 2 per cent., while four convalescents were not found sterile until after ten weeks (2.31 per cent.), and one bacilli-carrier after twelve weeks. One great difficulty in prophylaxis is that when children are excluded from school as bacilli-carriers they may play with healthy children. That this can be prevented by enlightening the parents is shown by the fine results obtained in a number of other German cities in which the above measures are enforced. At Augsburg fully 25 per cent. of all persons in the environment of a diphtheria case were found harboring diphtheria bacilli. The parents of the younger children did not object to the measures enforced but considerable diplomacy was required to carry them through in the upper grades. An arrangement was made with the school board by which children who had to be excluded from school for a number of weeks were given special instruction afterward to enable them to catch up with their class. In a very few instances it was found necessary to appeal to the authority of the local board of health.

Wiener klinische Wochenschrift, Vienna

February 5, XXVII, No. 6, pp. 117-140

111 *Elderly Patients. (Das Greisenalter als wichtiger Variationsfaktor klinischer Krankheitsbilder.) H. Schlesinger.
112 The Edema with Anemia. L. Hess and H. Müller.
113 Radium Therapy in Urology. H. Schüler.
114 Technic for Intra-Uterine Treatment. K. J. Bucura.

111. **Old Age as Affecting the Clinical Picture.**—Schlesinger comments on the scant attention that has been paid to the modifications in clinical pictures for which increasing age is responsible, aside from truly senile affections. For example, among 1,800 cadavers over 60 years old, cancer of the gastro-intestinal tract was found almost exclusively in men while less than a fourth of the cancers of the gall-bladder were in men. Study of this material shows further that old age in itself cannot be the most important factor in cancer, as after 70 comparatively few primary cancers develop. Persons just entering on old age seem most predisposed; in this material, 9.2 per cent. of the primary gastric cancers developed between 60 and 70 and only 4.1 per cent. after 76. Another point brought out is that the power to induce metastasis seems to decline with increasing age when the cancer is located elsewhere than in the pancreas or gall-bladder or bile ducts. There was metastasis from the gastric cancer in all but 11 per cent. of the patients between 60 and 65. After 70, 18 per cent. and and after 76, 50 per cent. had no metastasis. There was no metastasis in over 66 per cent. of the patients over 60 with bowel cancer. These facts render the prospects of radiotherapy more encouraging for elderly patients.

The clinical picture of infectious processes may be modified by relics from former infections from which recovery seemed complete at the time. They may also have left more or less immunity. This is not the case with streptococci, pneumococci and influenza and colon bacilli; they seem to confer extra susceptibility rather than immunity. One pregnant feature of disease in the elderly is the intensity of the general symptoms while the local symptoms are extraordinarily mild or lacking altogether. The inelastic lung tissue, impaired blood-supply, and the way in which one nerve center may lag behind the others all help in obscuring the local findings. At no other period in life are there so many latent forms of disease, but this is simply because we have not learned to recognize the special signs of trouble at this age. The course of diseases is either unusually short or unusually prolonged in the elderly. If the elderly survive the onset of angina pectoris, they may live much longer with it than a younger person. But they take far longer to convalesce from an acute disease, and complications on the part of the cardiovascular system are liable at any time. The gravest dangers for the elderly are anorexia and marasmus. He knows of only one instance of recovery from senile anorexia. He says that treatment is futile and the patients succumb to inanition.

Zeitschrift für Urologie, Berlin

March, VIII, No. 3, pp. 161-240 and Supplement

115 Practical Importance of Urethroscopy. E. Wossidlo.
116 Local Treatment of Gonorrhea in the Male. C. Heinemann.
117 Operative Treatment of Atrophy of the Prostate. H. Datyner.
118 Bladder Calculi. (Blasensteine: Entstehung, Behandlung und Verhütung.) S. P. von Fedoroff, F. Schlagintweit and J. Preindlsberger.
119 Electrotherapy in Urology. H. Wossidlo and R. Oppenheimer.

Zentralblatt für Chirurgie, Leipsic

March 21, XLI, No. 12, pp. 497-544

120 Technic for Correction of Cleft Palate. (Zur Frage des Verschlusses der Kieferspalte bei "einseitig durchgehender Gaumenspalte.") R. Drachter.
121 *The Thymus with Thyroid Disease. (Die Thymusdrüse bei Morbus Basedow und verwandten Krankheiten.) M. Simmonds.
122 Synthetic Epinephrin. (Zur Wirkung der synthetischen Nebennierenpräparate.) A. Schlesinger.
123 *After Prostatectomy. (Eine neue Methode zur Nachbehandlung der Prostatektomie.) J. W. Van Bisselick.

121. **The Thymus in Exophthalmic Goiter.**—Simmonds states that he found the thymus abnormally large in 14 of 18 cases of exophthalmic goiter and in 7 of 16 cases of mere thyroidism. That is to say, in 75 per cent., of all cases of exophthalmic goiter an abnormal thymus has to be reckoned with. He advises excising a scrap of the thymus when operating on the thyroid as microscopic examination may show whether the structure corresponds to that of a younger age or whether there is marked proliferation of the medullary substance. His article is based on necropsy findings in 10 exophthalmic goiter cases and 2 of thyroidism, and on the findings at operation in 8 genuine Basedow cases and 14 of thyroidism.

123. **Technic after Prostatectomy.**—Van Bisselick calls attention to the prompt recovery after prostatectomy when a retention catheter is worn continuously for a time and the

incision in the bladder is sutured except for a small space left open to bring out one strip of gauze. The bladder is rinsed every two hours and the catheter is changed daily. By this technic six of the nine patients were urinating spontaneously in less than two weeks; one man of 76 was up and about the sixth day. One of the others had cancer; in the two others the catgut was absorbed too soon but no serious complications developed, although one of these patients had cystitis with chills on entering the hospital. He was operated on at two sittings.

Zentralblatt für Gynäkologie, Leipsic

March 21, XXXVIII, No. 12, pp. 425-464

124 Theoretical Study of Serodiagnosis of Pregnancy. (Zur Theorie der Abderhalden'schen Schwangerschaftsreaktion.) J. Schottlaender. (Zur Abderhalden'schen Schwangerschaftsreaktion.) F. Primsar.
125 Fascia Lata Graft to Correct Genital Prolapse. B. Nadory.

Gazzetta degli Ospedali e delle Cliniche, Milan

XXV, Nos. 34-35, pp. 353-376

126 *Urochromogen in the Urine with Pulmonary Tuberculosis. (Sul valore semeiologico e prognostico della reazione del permanganato nelle urine.) G. Pignacca.
127 Familial Enuresis. L. Gatti.

126. **Urochromogen in Urine Pathognomonic of Pulmonary Tuberculosis.**—This is the conclusion reached by Pignacca after repeated examination of forty-six patients and a number of healthy controls. He applied the Moritz-Weiss permanganate test and found it constantly negative in the healthy controls and in patients with non-tuberculous affections while it was constantly positive in nine patients with pulmonary tuberculosis with a single exception, and constantly negative with tuberculous affections elsewhere than in the lungs, likewise with a single exception.

Policlinico, Rome

XXI, Medical Section No. 3, pp. 97-144

128 Effects on the Blood of Removal of Ovaries. (Effetti della castrazione ovarica sul sangue.) G. Antonelli.
129 The Leukocytes in Progressive Pernicious Anemia. P. Sisto. Commenced in No. 1.
130 Differential Importance of Topographic Percussion of the Lung Apex. (Valore semiologico dei campi di risonanza del Krönig.) A. Fagiuoli.
131 Roentgenoscopic Diagnosis of Hour-Glass Stomach. (Stomaco biloculare.) L. Coleschi.

Riforma Medica, Naples

March 14, XXX, No. 11, pp. 281-307

132 The General Practitioner. (Il medico pratico.) A. Murri.
133 Diabetic Eclampsia. T. Silvestri.
134 Forward Dislocation of the Head of the Radius. (Lussazioni anteriori della testa del radio.) G. Anzilotti.
135 Deviation of Complement by Thyroid Extract in Serum of Febrile Patients. A. Rossi.

Rivista Ospedaliera, Rome

February 28, IV, No. 4, pp. 173-220

136 Serodiagnosis of Syphilis. (Il valore diagnostico delle precipitine nella sifilide.) C. Russo.
137 Behavior of the Leukocytes in the Blood after Antityphoid Inoculation. (Sul comportamento dei leucociti nel sangue dei tifose vaccinati.) U. Daretti.

Brazil-Medico, Rio de Janeiro

March, XXVIII, No. 9, pp. 81-90

138 The Wassermann Reaction in Syphilis. G. da Silveira.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

II, Nos. 21-25, pp. 1767-2186

139 Cardiac Insufficiency. (Onvoldoende hartwerking en hartzwakte.) K. F. Wenckebach.
140 Herpes Zoster. (De path.-anat. bevindingen bij een geval van herpes zoster.) P. Nieuwenhuijse.
141 *Plague in the Netherlands. (Pestepidemieen te Gorinchem.) M. A. van Andel.
142 Medical Aspects of Bicycling. (Het wielrijden.) P. Plantenga.
143 Operative Treatment of Retrodisplacement of the Uterus. (De operatie van Alexander-Adam.) M. A. Mendes de Leon.
144 Medical Examination before License to Marry is Granted. (Geneeskundig onderzoek voor het huwelijk.) A. C. H. V. La Brand and A. L. Hagedoorn.
145 Mechanism of Tuberculin Reactions. (Analyse der tuberkulinewerking. J. Hekman.
146 *Green Effusion in the Pleura. F. A. Steensma and E. H. B. van Lier.
147 Treatment of Fracture of the Neck of the Femur. (Over de loopende behandeling van de breuk van den dijbeenbals.) A. Lorenz (Vienna).
148 Diphtheria and the School. C. Bakker.

141. **Plague.**—This is a historical article about the plague from 1348 to 1667. It contains many interesting data regarding the prevention, quarantining, care of the sick, disposal of the dead, etc., in those days.

146. **Green Effusion.**—This case of pleuritis which furnished the green exudate was not complicated with jaundice. According to some writers the green color cannot be due to bile-pigment if icterus is not present. But in this case the effusion contained a considerable quantity of bilirubin; the urine did not contain this coloring matter; there was no communication between the liver and the pleural cavity. Spectroscopic and microscopic analysis of the blood and clinical examination failed to reveal any explanation for the presence of the pigment in the effusion.

Russky Vrach, St. Petersburg

February 1, XIII, No. 5, pp. 145-180

149 Bacteriology of Typhus. S. V. Levashoff. Commenced in 4.
150 *Stenosis and Obstruction of Superior Vena Cava. K. A. Wagner.
151 Serodiagnosis of Carcinoma. S. M. Poggenpol.
152 New Method of Determining the Real Dimensions of the Heart with Roentgen-Rays. A. N. Alekekoff.

February 8, No. 6, pp. 181-216

153 Alleged New Method for Blood-Cell Count. N. K. Goriaeff.
154 Anastomosis between the Saphenous and Femoral Veins for Varicose Veins of the Legs. E. Hesse and W. Schaak.

February 15, No. 7, pp. 217-252

155 *Acute Thyroiditis as the Cause of Symptoms of Exophthalmic Goiter. D. D. Pletneff.
156 Modern Research in the Field of Auto-Intoxication. P. I. Philosophoff.
157 *Suppurative Peritonitis. I. I. Grekoff. Commenced in No. 1.
158 Connection between the Subarachnoid Space of the Brain and Spinal Cord and the Lymphatics in Man. M. Y. Radetzky.
159 Glycogen in the Tissues of a Chicken Embryo in Its Earliest Stages of Development. E. A. Kartashewsky and N. B. Veselkin. Commenced in No. 6.

150. **Obstruction of Vena Cava.**—Wagner reports four cases of stenosis of the superior vena cava caused by malignant tumors or tuberculosis of the mediastinum. The most constant and characteristic sign is the collateral circulation evident in the skin in the form of single dilated veins on the chest, abdomen, face or neck, most pronounced between the ensiform process and the umbilicus. Sometimes the dilated vessels form an actual network of interlacing veins. When pressed by the finger the veins became distended above the pressure point, thus indicating that the current flows from above downward. There are also numerous subjective clinical signs indicating involvement of the lungs and heart; dyspnea, cyanosis and edema of the face, dulness on percussion over the anterior surface of the chest, bloody pleural effusion, small pulse, etc. In recent cases of occlusion of the superior vena cava there may be only edema of the skin of the chest which subsides as collateral circulation develops. In older cases the latter is always present, and its absence speaks against the diagnosis of obstruction of the vena cava.

155. **Acute Thyroiditis as the Cause of Symptoms of Exophthalmic Goiter.**—Pletneff describes nine cases of infectious diseases, two of typhoid, two of sore throat and five of influenza in which the thyroid gland became involved. Clinically there were signs and symptoms of Basedow's disease, such as tachycardia, tremor, enlarged thyroid, Graefe, Moebius and Stelwag signs, etc. The toxic conditions involve apparently not only the thyroid, but other glands with an internal secretion, producing a so-called pluriglandular affection.

157. **Suppurative Peritonitis.**—Grekoff has had 217 cases of purulent peritonitis caused by appendicitis, cholecystitis, salpingitis, post-partum complications, typhoid, rupture of the intestines, stomach or bladder, perforation of ulcer of the stomach and duodenum, wounds of the intestines and stomach, etc. Of the 217 patients 205 were operated on, with 49.75 per cent. mortality. Grekoff prefers the open dry treatment of the infected peritoneal cavity by means of large incisions and large gauze tampons which, properly applied and changed, give as good results as any other method (lavage of the abdominal cavity, complete or partial closure of wound, etc.); all depends on the case. Whatever the method, the operation should be done early, expectant treatment being allowed only in those cases in which the infection shows a tendency to become circumscribed (gall-bladder trouble and gynecologic cases). In

such cases a treatment is used similar to Ochsner's. Otherwise he considers the expectant treatment as dangerous. All his patients with diffuse purulent peritonitis who refused operation died. Lavage of the peritoneal cavity was done nineteen times, with four recoveries. This method is to be used, he declares, only in late cases when the contents of the stomach and intestines get into the abdominal cavity. Complete closure of the laparotomy incision is indicated in early cases (in twelve cases only one patient died).

When there are no changes in the intestines, no hemorrhage, etc., drainage by means of tubes is condemned by Grekoff as intestinal obstruction may be the result. After operative treatment he advocates Fowler's position, repeated lavage of the stomach when the latter becomes distended, saline rectal injections, sometimes in drop form. In case the intestines become enormously distended, repeated puncture with a needle or pin proved to be a safe and reliable measure, while physostigmin, atropin and other drugs did not give very satisfactory results. Symptoms of adhesive peritonitis subsided under application of vacuum cups (Bier). Grekoff comes to the conclusion that in the fully developed cases of purulent peritonitis the prognosis is very bad. Prophylactic treatment is the best, i.e., early diagnosis and treatment of those diseases that may lead to peritonitis and an early operation of the latter when it has developed.

Hospitalstidende, Copenhagen

March 18, LVII, No. 11, pp. 321-352

160 *Sodium Glycocholate in Serodiagnosis of Syphilis from Blood in Umbilical Cord, etc. (Undersøgelser over Opvarmningens indflydelse paa Fældningsreaktionen med glykocholsurt Natron.) C. With.

161 *Differential Diagnosis of Tuberculosis and Syphilis of Mucous Membrane of Upper Respiratory Tract. O. Strandberg.

160. **Serodiagnosis of Syphilis.**—With reports research with various modifications of the sodium glycocholate precipitation test, especially with and without warming the serum, and with parallel tests with the Herman-Perutz and other technics. His material embraces 563 cases of syphilis and 44 controls; the blood from the umbilical cord was examined in 194 cases.

161. **Differential Diagnosis of Tuberculosis and Syphilis on Mucous Membrane.**—Strandberg calls attention among other differentiating points to the fact that lupus generally develops with an infiltrated margin, large granulations and mucopurulent secretion; in syphilis the granulations are fine and the secretion is thin and more purely serous. Another point is that tuberculosis or lupus extremely rarely invades the mucous membrane of the upper air passages as the primary lesion, while this is a frequent location for isolated syphilitic lesions in the third stage of the disease. The Wassermann test may give a negative response even when this is the case, especially not long after a course of treatment. Much's stain and inoculation of animals are not decisive on account of the almost inevitable mixed infection. A local reaction on the mucosa after injection of tuberculin is enlightening. Solger regards as pathognomonic for syphilis the finding of vessels obstructed with granulation tissue as shown by staining the elastin, although this does not always occur. A lesion of any kind on the palate is almost invariably of syphilitic origin, regardless of what the history of the case may apparently demonstrate otherwise. The syphilis of course may be associated with tuberculosis in any affection of the mucosa of the upper respiratory tract, but vigorous treatment may eliminate the syphilitic factor at least.

Hygiea, Stockholm

March 1, LXXVI, No. 5, pp. 257-318

162 *Adhesive Pericarditis. (Om synechia pericardii.) I. Holmgren.

162. **Adhesive Pericarditis.**—Holmgren comments on the rarity of pericarditic synechia in tuberculosis. In the course of years and hundreds of necropsies at a sanatorium for lung diseases, adhesive pericarditis for which tuberculosis was responsible was encountered only a very few times. He has diagnosed over twenty cases of adhesive pericarditis in his service since 1906; corroborated by necropsy in nine. In other cases simple adhesion was discovered at necropsy when there had been no symptoms during life to call attention to it. Some typical cases are described. Necropsy in one young man showed that the adhesive pericarditis had involved the diaphragm and spread to the part of the liver just below; adhesions had welded the whole into a solid mass at this point. A tugging retraction of the chest wall over the apex region during systole is strong testimony for synechia if other causes can be excluded, especially traction on the heart from shriveling processes in the lungs. Still stronger evidence for synechia is afforded by retraction of the whole of the heart. This is often followed by a diastolic bulging of the wall over the heart. The veins in the neck may collapse suddenly during diastole; Brauer has also called attention to a third heart sound. Holmgren regards as significant a friction sound localized at the base of the heart, although a similar sound is often encountered in pulmonary tuberculosis or pleurisy and he reports a case in which it proved to be a sign of cancer metastasis. If other causes for pulsus paradoxus can be excluded it is strong evidence of pericardial synechia. The fixation of the diaphragm leads to disturbances in respiration out of all proportion to the symptoms of trouble in the heart. Another sign suggesting adhesions is the absence of the normal shifting of the position of the heart as the patient stands and reclines. If there are no symptoms except those of the synechia, the prognosis is not inevitably bad, but if there is complicating infection, a child seldom reaches the age of puberty; with an adult the outcome frequently depends on whether he can spare himself or not. Operative separation of the heart from the chest wall—cardiolysis—has been applied in only a few cases, but the results have been encouraging. The resection of ribs renders the chest wall more yielding. Heart tonics are needed as with other causes of insufficiency of the heart. Alcohol and tobacco are strictly contra-indicated with severe trouble.

Finsen suffered from chronic adhesive pericarditis and he learned by experience that he felt better on a salt-poor diet, his ascites growing less and returning again whenever he resumed salt.

Nordiskt mediziniskt Arkiv, Stockholm

LVI, Internal Medicine No. 2. Last indexed Jan. 31, p. 422

163 Production of Uric Acid. (Bildung der Harnsäure beim Menschen.) J. P. Chrom.

164 *Pathogenesis of Goiter. (Die Strumafrage.) C. Schiøtz.

165 Absorption of Sodium Salicylate Depends on Its Concentration. (Bedeutung der Konzentration für die Resorption von Salicylas natricus bei verschiedenen Applikationsmethoden.) E. Levin.

166 Diaphragmatic Hernia. (Fall von Hernia diaphragmatica spuria congenita dextra.) P. Wetterdal.

164. **Pathogenesis of Goiter.**—In Schiøtz's district goiter is wide-spread and endemic, but very mild. Analysis of an extensive material has convinced him that the goiter is the anatomic expression of an increased functional response to greater demands made on the thyroid from some cause. The gland responds by enlarging its secreting surface. There must be some endemic harmful influence against which the thyroid seeks to rally all its forces. When they prove inadequate, cretinism or myxedema result. He says that animal food and protozoan affections make unusually great demands on the thyroid. The less vigorous the thyroid, the sooner it yields and enlarges, so that every goiter must be regarded as a sign of thyrasthenia. The thyroid in women has demands made on it in the course of the functioning of the ovaries and pregnancy, which cooperate to render it less resistant. This explains the larger proportion of goiters among women. The thyroid, adrenals and hypophysis are in one side of the balance; the genital glands, pancreas and parathyroid bodies in the other side. When one gland in each of these two groups becomes functionally deficient, the other glands in that group suffer with it. An unstable nervous system is liable to add its influence. This is the explanation for exophthalmic goiter, he thinks. It is a neurosis, and it is more correctly designated as neurotic thyreosis.

Ugeskrift for Læger, Copenhagen

March 19, LXXVI, No. 12, pp. 493-538

167 Curds in Infants' Stools from Unmodified Milk. (Om rjamaeikskoagler i flaskebørns afføring.) V. Pouisen.

168 Roentgen-Ray Treatment of Deep-Lying Cancer; Five Cases. S. and J. Nordentoft.